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Report of the

National Commission on Diabetes

to the Congress of the United States

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Volume III

REPORTS OF COMMITTEES, SUBCOMMITTEES, AND WORKGROUPS

Part 4

TREATMENT OF DIABETES

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service National Institutes of Health

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"The National Diabetes Mellitus Research and Education Act" (Public Law 93-354), signed by the President on July 23, 1974, directed the appointment of a National Commission on Diabetes whose charge was to formulate a long-range plan of research and education to combat diabetes mellitus. The Commission submitted its report to Congress on December 10, 1975.

REPORT OF THE NATIONAL COMMISSION ON DIABETES

Volume I - The Long-Range Plan to Combat Diabetes

Volume II - Contributors to the Deliberations of the Commission
- Part 1 - Public Testimony (Public Hearings 1-5)
- Part 2 - A. Public Testimony (Public Hearing 6 and Interviews)
  - B. Biographical Sketches of Commission Members and Consultants

Volume III - Reports of Committees, Subcommittees, and Workgroups
- Part 1 - Scope and Impact of Diabetes (I)
- Part 2 - Scope and Impact of Diabetes (II)
- Part 3 - Etiology and Pathology of Diabetes
- Part 4 - Treatment of Diabetes
- Part 5 - Diabetes Education for Health Professionals, Patients, and the Public
- Part 6 - Workgroup Reports
  - A. Diabetes Research and Training Centers
  - B. Veterans Administration Programs for Diabetes
  - C. Center for Disease Control: Diabetes Control Programs
  - D. National System for Diabetes Data Resources
  - E. Federal Resources

Volume IV - Supporting Materials to the Commission Reports
- A. Summary of Federal Health Legislation Pertaining to Diabetes
- B. Summary of Diabetes Program Funding
- C. Special Reports

Report of the

National Commission on Diabetes

to the Congress of the United States

Volume III

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Public Health Service National Institutes of Health

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VOLUME III

REPORTS OF THE COMMITTEES,
SUBCOMMITTEES, AND WORKGROUPS

PART 4

Report of the Committee on
Treatment

Report of the

COMMITTEE ON TREATMENT

to the

NATIONAL COMMISSION ON DIABETES

Chairman:

Donnell D. Etzwiler, M.D.

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PREFACE

This report represents the efforts of the Committee on Treatment, whose members were chosen from among diabetes-interested lay persons and professional experts in varied fields related to diabetes treatment, supplemented by other consultants. We have worked intensively in the very short period of time available to us, to conduct a comprehensive review of all aspects of both the substances of treatment measures for, and the delivery of treatment to, persons with diabetes mellitus, and to prepare recommendations for consideration of the National Commission on Diabetes in its report and recommendations to Congress.

The Committee met first on June 2-3, 1975, in Reston, Virginia, to analyze and formulate the full sequence of therapeutic tasks or functions needed in the care of people with diabetes and to begin to identify what does and does not exist to provide these needs.

A subcommittee of the Committee next participated in a meeting of the Commission at the Center for Disease Control, July 7, and on July 8 and 9 in Bethesda, Md., and Rockville, Md., interviewed (in part in conjunction with members of the Committee on Education) representatives of other federal agencies whose programs relate or might relate to diabetes. The subcommittee then and again, on August 6-7 in Chicago, began to prepare drafts of sections of this report. Mrs. Joan Hoover of the Committee on Scope and Mrs. Polly Toll joined the August 6-7 session. Dr. Paul Elwood, Director of Interstudy in Minneapolis, was also a valuable consultant at that time.

Meanwhile on July 28, in the Research Triangle in North Carolina, Dr. Jay Skyler from the Committee organized and conducted a "Workshop on Current Status and Future Directions of Therapy" with expert participants reviewing all aspects of diabetes treatment.

The entire Committee met again on August 19-20 in Chicago to review and revise drafts of material for this report.

Following presentation and discussion of the preliminary draft by the National Commission on Diabetes on September 9, the report has been modified and edited. This step has also benefited from the recommendations of the special workgroup of pediatricians along with representatives of the Juvenile Diabetes Foundation and the American Diabetes Association who met on September 10, and from suggestions made by Dr. Robert Jackson.

The concerns of this Committee clearly overlap with those of the Committee on Education, both patient and professional. We of these workgroups have attempted to keep each other informed of our programs, but have not had time to collaborate as closely as would be desirable.

Based on the work of this group, a number of specific recommendations have emerged, which are underlined for emphasis in this report, as well as a series of general approaches which we consider essential to accomplishing the goals of the Commission.

The Project Summaries included in this report also reflect the wide range of research and developmental efforts called for. Many of the projects are described only briefly, due both to time constraints and to the view expressed by Dr. Oscar Crofford, Commission Chairman, at the September 8-9 meeting, that the summaries are to serve mainly for the purpose of collating proposed projects from the various workgroups.

Finally, we want to express our appreciation to support staff members who have worked hard and enthusiastically, often at inconvenient times, to help prepare this report.

T. Franklin Williams, M.D.
For the Committee on Treatment

I. INTRODUCTION

Treatment of diabetes mellitus consists of the care and management of diabetes by health professionals and patients (or those responsible for their care). It should use current modes of therapy, provided in a planned system which encourages patient participation and is systematically evaluated.

The goal of treatment is to permit those with diabetes to live active and productive lives while minimizing or eliminating complications frequently associated with diabetes.

This definition implies that any consideration of treatment must include:

- Modes of therapy
- Delivery of therapy
- Compliance with therapy
- Evaluation of therapy

Education is an inseparable part of treatment. Overall treatment systems must necessarily include all components listed above, including education (patient, professional, and public).

Those charged with the responsibility of diabetes treatment must convey adequate education to patients and their families to further enhance their efforts toward better management and toward adjustment to their diabetes. This is especially important in the case of young people and children with diabetes. It is referred to later in this report and is also documented in depth in the Report of the Committee on Education.

Improved treatment of diabetes can make a difference: one dramatic example is the 80% reduction in hospitalization of people with diabetes achieved by Miller and Associates in Los Angeles through a program of treatment to meet the specific needs of their patients (1, 2, 19).

If four out of five hospitalized days for people with diabetes are needless, the time has come to examine the treatment and educational modalities available, the social and psychological impediments that result in poor patient compliance, and the problems occurring in the delivery of health care to diabetic patients.

There is no known "cure" for diabetes. However, there are treatment modalities (2-7) that can prevent diabetic and hyperosmolar coma, the problems associated with uncontrolled hyperglycemia, early cataract development in the juvenile diabetic, fungal and bacterial infections,

the morbidity associated with improper foot care, and reduce the mortality rate of infants of diabetic mothers. Sadly, testimony before the National Commission on Diabetes (8) by persons with diabetes, members of their families, and professionals caring for diabetic patients, attest to the fact that these known effective methods of treatment are not reaching many diabetic patients in this country. For example, while diabetic coma is almost an entirely preventable condition, many large city, county, and university hospitals are still reporting that between 100 and 500 cases (2-9) are being treated in their institutions annually. The mortality rate of diabetic coma ranges from 3% (10) in some institutions to as high as 20% (11) in others.

Attempts to achieve appropriate care for persons with diabetes mellitus clearly expose some of the defects of the American health care system. The crisis-oriented, episodic nature of most doctor-patient encounters leaves the person with diabetes at a particular disadvantage. Over the years, the critical issues in care for most diabetic patients are the undramatic ones of longitudinal observation, detection of complications and their management, and the assumption by the patient of a major part of the responsibility for his own care. For most of the time, the person with diabetes presents no severe or acute problems which can compete successfully for the attention of an overloaded primary care physician. At the same time, the patient is usually cared for in a setting which has not traditionally permitted nor encouraged transfer of responsibility from the physician to the patient. Such persons also find themselves caught between the desirability of longitudinal primary care (where available and accessible) and the need for highly specialized professionals. Shall the patient go to the tertiary care center for that expertise, with all the risks of fractionation of care inherent in that setting, or remain with a primary care physician who often lacks sufficient experience with diabetes and its care to provide the best informed service?

A major problem in the care of diabetes is the uncertainty about the relationship of cardiovascular and renal complications to modes of care and the strictness of their enforcement: can complications be prevented, ameliorated, or forestalled, and, if so, what elements in long-term care make the difference (12)? An episodic care system, applied to a highly mobile population in inconsistent and idiosyncratic ways, does not provide a means to collect the longitudinal data necessary to begin to answer this question. Thus, the simple provision of "care" without rigorous evaluation of outcomes and standardization of data collection will not contribute to our understanding of the fundamental nature of diabetes, nor will it provide any useful guidance for modification of current treatments to possibly improve the results.

The health care system and providers are not the only sources of inadequacy in the care of the person with diabetes. American patients are not likely to seek care when asymptomatic, nor for purely preventive

reasons (13). Another problem is the failure of patients to comply with reasonable and appropriate regimens, even when these are apparently well understood (14-18).

Thus, any recommendation for new or improved care systems must not only address the specific needs of persons with diabetes and the current deficiencies, but must also provide a framework in which critical research on the effectiveness of care can be carried out as well.

Some of the specific areas of critical research and inquiry which should be facilitated by and incorporated into any new care system include:

A. Data collection which will begin to explicate the natural history of diabetes mellitus; this should be particularly fruitful in the study of juvenile diabetes, with likely important implications for the understanding of the pathogenesis of the disease;

B. Careful comparative longitudinal studies of different treatment modalities and their effectiveness and results;

C. Studies of educational programs for professionals and patients alike; attempts to assess what works and why, and to look critically at content, composition, and delivery in terms of learning and behavior change by the target audience rather than just in terms of teaching;

D. Studies of most effective ways of delivering the care presently available, with special inquiry into possible roles for new health professionals;

E. Studies which will attempt to elucidate why even well-informed patients, with adequate access to sufficient care, still fail to comply with therapeutic recommendation, often to their detriment;

F. Evaluation of new therapies, both in terms of effectiveness and with an eye to early detection and correction of the inevitable problems which will accompany the new therapies;

G. Recognition that cost containment must be borne in mind with the realization that not all of society's ills can be cured with medical expenditures alone.

It is apparent that new or augmented programs for people with diabetes which incorporate these goals should be able to provide data applicable to chronic disease management in general; it is not the person with diabetes alone who will benefit from establishment of such programs.

The systematic delivery of care thus should permit the generation of data from which important new knowledge will come, which in turn, will have important effects on the future delivery of care.

REFERENCES

1. Miller, L. Evaluation of patient education: Testimony before National Commission on Diabetes, Sheraton Hotel, Los Angeles, May 8, 1975.

2. Miller, L.V. and Goldstein, J. More efficient care of diabetic patients in a county-hospital setting. N Engl J Med 286:1388-1391, June 29, 1972.

3. Davidson, J.K. et al. Assessment of program effectivness at Grady Memorial Hospital: In: Steiner, G. and Lawrence, P., eds. Education of the diabetic patient (in preparation).

4. Bagdale, J.D. Infections in diabetes mellitus. In: Fajans, S.S. and Sussman, K.E., eds. Diagnosis and Treatment. Am Diab Assoc 211-215, 1971.

5. Boyd, J.D. Avoidance of degenerative lesions in diabetes mellitus. JAMA 118: 694, 1952.

6. White, P. Pregnancy and diabetes. Joslin's Diabetes Millitus. Lea and Febiger. Phil. 1971.

7. Pedersen, J. and Pederson, L. Prognosis of the outcome of pregnancies in diabetics. A new classification. Acta Endocr (Kobenhavn) 50: 70-78, 1965.

8. Hearings of the National Commission on Diabetes. Los Angeles, Calif., May 7-8, 1975. Seattle, Wash., May 9-10, 1975, Atlanta, Ga., July, 1975.

9. Davidson, J.K. Diabetes in socioeconomically deprived neighborhoods. Diabetes mellitus. In: Fajans, S.S. and Sussman, K.E., eds. Diagnosis and treatment, Am Diab Assoc, 208, 1971.

10. Entmacher, P.S. et al. Longevity of diabetic patients in recent years. Diabetes 13: 373, 1964.

11. Unpublished. Data from hospital statistics, Veterans Hospital, Long Beach, California. 1969-1974.

12. Knowles, H.C. et al. Diabetes mellitus; the overall problem and its impact on the public. In Monograph of Diabetes. Fogarty Institutes, Washington, D.C. (in press).

15. Carter, T. L. National Health Education and Promotion Act of 1975. Cong Rec 72 1678, April 10, 1975.

14. Marston, M. V. Compliance with Medical Regimens: A Review of the Literature. Nursing Research 19: 312-22, 1970.

15. Becker, M. H. et al. A new approach to evaluating sick-role behavior in low-income populations. Am J Pub Health 64: 205-16, 1974.

16. Tagliacozzo, D. N. et al. Nursing intervention and patient behavior -- an experimental study. Am J Pub Health 64: 596-603, 1974.

17. Caplan, S. E. Communications and compliance in an urban pediatric out-patient clinic. Thesis. Rochester, New York, University of Rochester School of Medicine and Dentistry, 1975.

18. Williams, T. F. et al. Dietary errors made at home by patients with diabetes. J Am Diet Assoc 51: 19-23, 1967.

19. Fogarty Conference on Diabetes (in press).

II. STATE OF THE ART AND FUTURE DIRECTIONS

A. MODES OF THERAPY*

1. Preface

The number one concern of all patients with diabetes, their families, and therapists is that there is now no cure for diabetes mellitus, a disease which afflicts people of all ages. While it is possible to attempt to control the level of blood sugar, it is not clear that controlling blood sugar is equivalent to controlling diabetes. It is not known that blood sugar really reflects diabetes control. There is lack of adequate data on the degree to which blood sugar should be controlled. All regimens attempting to achieve control achieve only an approximation of what is seen in the individual without diabetes and by no means does this represent actual control.

There are as yet insufficient data to conclude with any degree of certainty that control of blood sugar will prevent complications of diabetes. These complications are of major importance and include such things as blindness, kidney disease, and decreased life expectancy. There is no cure for the chronic complications of diabetes. There are only palliative therapies which may or may not halt or delay the progression of the complications. Thus, complications represent a continuing concern in diabetes management.

2. State of the Art

The characteristic feature associated with diabetes mellitus is elevation of blood glucose (sugar), which if sufficiently high also results in the presence of glucose in the urine. This manifestation of diabetes, however, is but one indicator of the deranged metabolism. The abnormalities of metabolism include alterations in the utilization of all nutrients (amino acids and fatty acids, as well as glucose) and alterations in the cholesterol, triglycerides, and ketones. The hormones which regulate metabolism and nutrient utilization also are altered in their circulating level and pattern of secretion. These include insulin, glucagon, growth hormone, catecholamines (adrenalin for example), and glucocorticoids (cortisone).

The symptoms most characteristic of diabetes are increased thirst, increased amount of urine, and weight loss or increased appetite. These cardinal symptoms are a direct result of the loss of large amounts of glucose in the urine and mean that the diabetes is

*A more comprehensive and technical consideration of this topic, which serves as the basis for this section, is included as Appendix A.

relatively severe. When diabetes is mild, the person may have no discomfort or hint that he has diabetes for a period of years.

Diabetes is conventionally divided into two general categories: (1) that which ordinarily begins in childhood or young adult life, and is characterized by a total or nearly total inability of the pancreas to make insulin, and (2) that which begins in later life and in which the pancreas has a decreased, but still considerable, capacity to make insulin. The first of these is called growth-onset, insulin-dependent, ketosis-prone, or juvenile-onset diabetes; the second is called maturity-onset, insulin-independent, or ketosis-resistant diabetes.

Diet, exercise, and the administration of insulin or certain drugs called oral hypoglycemic agents may correct these derangements in varying degrees. These derangements in hormone secretion and in the way the body uses nutrients can result in both acute and long-term threats to health and life. Among the acute or short-term complications of diabetes are diabetic ketoacidosis, lactate acidosis, and hyperosmolar coma. Long-term complications include deterioration of nerves (neuropathy), an acceleration of deposition of cholesterol and other fats in the lining of large blood vessels (atherosclerosis), thickening of the small blood vessels of the kidney (nephropathy), changes in the blood vessels in the eyes (retinopathy), characteristic skin abnormalities, and increased susceptibility to some infections.

a. Approaches to Metabolic Control of Diabetes

An overall objective of therapy of diabetes is to relieve or prevent symptoms and manifestations of diabetes, both its metabolic component and vascular and other complications, while permitting a reasonably convenient and conventional lifestyle acceptable to the patient. This is done with the recognition that there is a wide range of readiness to participate in treatment -- extending from almost complete passivity to willingness and ability to learn and adopt altered dietary and other patterns of living.

The ideal therapy would completely normalize the metabolic derangements and prevent development of the vascular and other manifestations.

One problem that clinicians treating patients with diabetes face is the selection of parameters to use to monitor therapy. Blood and/or urine glucose levels are often used for this purpose. These have several weaknesses, however. Blood glucose undergoes minute-to-minute variation and since there are often wide swings throughout the day, one or two selected measurements may not accurately reflect what is happening during the rest of the day. Urine glucose, although generally

correlating with blood glucose, shows much individual variability such that it does not always reflect blood glucose levels.

Further, sampling of glucose levels, either in the blood or in the urine, is only one part of the total picture of altered metabolism. Whether other nutrients or hormonal levels should be measured to monitor management is not clear.

The other, more burning issue is the relationship of blood glucose control and metabolic control to the development of vascular and other complications. Some would hold that the long-term vascular problems are a concomitant (integral part) of diabetes and are in no way influenced by metabolic control. More widespread is the belief that the long-term vascular problems are true complications related to altered metabolism. The latter view is supported by many recent studies. It must be recognized, however, that the definitive answer is not yet available. This is due to the fact that all treatment modalities which attempt to reverse altered metabolism achieve only an approximation of what is true in individuals without diabetes. The questions cannot be clearly answered until suitable criteria for monitoring metabolic control are developed and applied in a convenient manner.

It is the difference of opinion on this critical question which leads to much of the controversy about diabetes management, and which is responsible for the great variation in treatment regimens.

Patients exhibit varying capacities for achieving metabolic control and each patient should be helped to arrive at the optimum of which he is capable. The individual patient should not be made to conform to a preconceived notion of his physician in this regard.

Although there is a wide spectrum of philosophies and, therefore, of treatment regimens, these might be classified into three major groups based on three philosophies.

Philosophy #1 holds that all problems of diabetes are unrelated to metabolic control. Management is designed to prevent severe degrees of metabolic derangement, particularly ketoacidosis.

Philosophy #2 attempts to achieve a moderate degree of metabolic control to minimize ketoacidosis and infections and to provide normal growth.

Philosophy #3 holds that vascular and other complications can be prevented or significantly reduced or delayed by achieving a higher level of metabolic control. The control attempted by those who believe this philosophy is often called rigid or tight control. Even within those who adopt this philosophy, there are wide differences of opinion

as to what degree of metabolic control is indicated. Part of the problem is related to the previously discussed difficulties in selecting parameters to monitor. All require arbitrary decisions as to what are acceptable degrees of metabolic control.

Thus, before diabetes treatment can ever be satisfactory, several issues must be resolved. These include:

1) Defining parameters which reflect altered metabolic control.

2) Developing convenient, reliable, and valid methods of monitoring those parameters.

3) Determining the relationship of degree of control of these parameters to development of both acute and chronic complications of diabetes.

4) Developing criteria or evaluating outcome of therapy in relation to control.

In the sections that follow, major aspects of the current state of the art in treatment of diabetes are summarized, including: nutrition, exercise, use of insulin, oral hypoglycemic agents, ketoacidosis, neuropathy, diabetes and the eye, diabetes and the kidney, vascular disease in diabetes, care of feet, lipoatrophy and lipohypertrophy, diabetes and the skin, infections in diabetes, pregnancy and diabetes, psychologic aspects, and special aspects of treatment needs of children.

b. Nutrition

Blood glucose levels may be controlled by a number of means. The cornerstone of regulation of blood glucose is diet. Exercise also contributes to regulation of blood glucose and medications may be used to lower glucose. These include insulin in its various forms, all of which must be administered by injection; and oral hypoglycemics, medications of two classes of which are taken by mouth, which help lower blood glucose.

In the person without diabetes, insulin is secreted from the pancreas following food intake and acts to lower the blood glucose and utilize the food as an energy source. There are periodic bursts of insulin secretion each time food is ingested. When food is omitted, insulin secretion is markedly diminished. As insulin acts and the blood glucose level is lowered, other hormones, including glucagon, growth hormone, adrenalin, and glucocorticoids are secreted and serve to stabilize the blood glucose in a relatively narrow range. In the person

with diabetes, however, this entire regulatory system is unbalanced. In the juvenile-onset type of diabetes, where insulin must be supplied, it becomes obvious that food, too, must be supplied for the insulin to act upon. If it is omitted, the continued presence of insulin will lower blood glucose to levels lower than can be tolerated (hypoglycemia or insulin reaction). Therefore, the basic dietary principle that underlies treatment in the insulin-dependent person with diabetes is a regular food intake at relatively frequent intervals. If the insulin dose is to be constant from day to day, so must the amount of food be relatively constant. Thus, we see the basis for the dietary management of this category of diabetes -- regularity of food intake in terms of both amount and timing.

Nutrients furnishing calories come in three basic forms -- carbohydrate, fat, and protein. The carbohydrate may be simple and rapidly available, or more complex and more slowly available. Fat and protein are also utilized at somewhat different rates than carbohydrates. Ideally, the proportion of carbohydrate, fat, and protein in the diet should be relatively constant on a day-to-day basis if calories in the diet, blood glucose, and insulin action are to be balanced. The use of simple rapidly utilized carbohydrate, usually available as simple sugar or sweets needs to be curtailed to prevent rapid elevation of blood glucose. Sugar and sweets are used, however, when blood glucose levels are too low, i.e., to treat a hypoglycemic reaction. Because exercise increases the efficiency of glucose utilization, diet and/or insulin dose must be altered when there are changes in the usual exercise pattern. Likewise, various stresses, including infections, psychological stress, and illnesses, destabilize the balance and raise the blood sugar. These situations call for increased insulin need. Thus, the major goal in management of insulin-dependent diabetes is to achieve a balance of diet, exercise, insulin, and stresses such that blood glucose can be maintained at a relatively constant level, avoiding both excessively high levels and excessively low levels.

The other major category of diabetes is the maturity-onset, ketosis-resistant person. In this type of diabetes, there is some residual albeit impaired insulin secretion. These patients thus do not require insulin administration although insulin may be needed in some such patients to supplement their own insulin production. Most of these patients are overweight. The correction of body weight to relatively normal levels will usually markedly improve the metabolic balance and return blood glucose levels toward normal. Even patients who by some standards may not be considered to be overweight, often show improvement with weight loss. These patients probably are metabolically overweight and help point to the need for further development of criteria to assess weight and determine what weight should be, not only for people with diabetes but for the population at large. Thus, the mainstay of management of the maturity-onset category of diabetes is a weight

reduction diet. Because of the residual insulin function, timing and constancy of meals is less crucial than in the insulin-dependent category of diabetes. Total caloric restriction is the fundamental principle of therapy of the maturity-onset category of diabetes. The nature of the foods that comprise the diet are of less importance.

Many persons with diabetes do not receive adequate instructions in diet; those who do, often fail to understand fully. Even those who have good instructions will adhere to the prescribed dietary regimen only briefly. This pessimistic view is widespread among physicians, and while it has considerable validity, it constitutes a serious barrier to the dissemination of dietary information. The view that diet instruction is of little or no value leads to a failure to give any, except the most general, dietary instructions such as "avoid sugars and sweets." There is a need for better and more readily comprehended instructional systems, and the availability of dietitians or their aides in all communities to carry out initial and review diet instructions. All hospitals could usefully provide as a part of their services a dining room for outpatient use in which the prescribed diabetic diet (and other therapeutic diets) can be served. The opportunity to experience such meals for a few days in conjunction with conventional diet instructions should present the dietary information better than the usual instructional techniques. The availability of effective and reasonably convenient instructional facilities should encourage a less pessimistic view by physicians of the effectiveness of diet.

c. Exercise

Utilization of glucose and food as an energy source for the body is dependent on both dietary source of nutrients (diet) and insulin to aid in burning of the nutrients. This is critically affected by exercise in two ways. First, exercise directly alters requirements for calories -- the more exercise, the more calories needed for energy. Second, the action of insulin in promoting utilization of nutrients for energy is enhanced by exercise -- that is, a given amount of insulin appears to be more effective in an exercising person. Thus, control of blood glucose level is directly related to diet, insulin, and exercise. Increased exercise causes need for more food and/or less insulin. Sedentary situations require less food and/or more insulin. When any one of this triad (diet, insulin, or exercise) is altered at least one other component needs to be altered as well, to maintain balance. Better communication and understanding of the interrelationships of diet, insulin, and exercise by patients with diabetes will result in improved management. A prerequisite to this is improved understanding of the mechanisms by which exercise affects the metabolic balance, and of quantitative relations between how a given amount of exercise influences diet and/or insulin requirements.

In general, it would appear that a regular pattern of exercise will improve control of diabetes and general well-being.

d. Use of Insulin

Insulin must be administered at least once daily to those individuals with the insulin-dependent, juvenile-onset type of diabetes. It may also be used for some patients with the maturity-onset, insulin-dependent type. Since insulin is a protein that would be destroyed in the stomach and intestines, it must be given by injection.

There are several kinds of insulin commonly available. They differ in time of action (including time of onset of action, time of peak or maximum effect, and length or duration of action), concentration, and source. In terms of time of action, these can be classified into three general groups: (1) short-acting -- which includes "Regular" or "Crystalline" insulin, and "Semi-Lente" insulin; (2) intermediate-acting -- which includes "NPH" or "Isophane" insulin, "Lente" insulin, and "Globin" insulin; and (3) long-acting -- which includes "PZI" (Protamine Zinc Insulin), and "Ultra-Lente" insulin. The latter three kinds (Globin, PZI, and Ultra-Lente) are used much less frequently than the other kinds. Often a short-acting and an intermediate-acting insulin are given together ("mixed" insulin regimen). Other times, two injections daily of intermediate-acting insulin are used ("split" insulin regimen). Often, other combinations are given, e.g., morning and evening injections, each with short-acting and an intermediate-acting insulin ("split and mixed" insulin regimen). These various combinations are used because of variations in individual response to insulin, varied lifestyles, and the imperfectness of insulin regimens in normalizing blood sugar. The more complex regimens are usually employed by those practitioners who hold to the philosophy that "rigid or tight" control of blood sugar is important in minimizing complications.

Insulin is available in the United States in three concentrations -- U40, U80, and U100, which correspond to 40, 80, and 100 units of insulin per cc of solution, respectively. One unit of any concentration is equivalent to one unit of any other concentration. There is now an attempt being made to phase out U40 and U80 usage to facilitate metrication by use only of U100; to avoid confusing patients who may accidently use the wrong concentration in equipment for a different concentration; and to allow focus of effort both in production and in patient education to be unified. When disposable syringes suitable for measuring small doses of U100 become available, the elimination of the lower concentrations will be expedited.

The source of insulin is extraction from pancreases of animals coming to slaughter. Both beef insulin and pork insulin are

produced. The usual commercial insulin is either a combination of approximately 70% beef and 30% pork (Lilly Company) or pure beef (Squibb Company). Both are effective in human beings, but both differ in structure slightly from human insulin. Pork insulin differs in only one of 51 amino acid positions from human insulin. Beef insulin differs in four of 51 positions. Some patients may benefit from use of pure beef, or more often, pure pork insulin. This is true in those with allergic responses to insulin which may be seen either as local allergies or as resistance to insulin action (recognized by a very large dosage requirement).

Recent advances have allowed the insulin production process to be altered so that insulin, which was formally marketed only 92% pure is now marketed 99% pure ("single peak insulin"). This has reduced the frequency of allergic reactions and has provided a new treatment for "lipoatrophy." (See section on Lipoatrophy and Lipohypertrophy.)

One problem facing management of diabetes is changing supply and demand patterns with regards to insulin. Supply of pancreases available to the manufacturing industry for insulin production is diminishing. This is due to a variety of factors, including: the increased price of beef and pork causing decreased numbers of animals to come to slaughter; increased competition for pancreases by other industries which have other uses for pancreases; increased demand for glucagon, which competes for insulin production processes from pancreases; and significant losses in the production process of the most purified form of insulin ("single component" insulin). Demand for insulin is also increasing due to: increased incidence of diabetes in the United States today; higher doses of insulin used by physicians in attempts to prevent complications of diabetes; and increased numbers of patients being switched from oral hypoglycemic agents to insulin due to the recent controversy over use of oral agents.

e. Oral Hypoglycemic Agents

Oral hypoglycemic agents are drugs, given by mouth, which enhance insulin release or insulin action in those patients with some insulin production of their own (the insulin-independent, maturity-onset category). These agents presently have no defined role in the management of the insulin-dependent, juvenile-onset type of diabetes.

There are several such drugs commercially available in the United States. They fall into two general categories. These are the sulfonylureas (including tolbutamide or Orinase, acetohexamide or Dymelor, tolazamide or Tolinase, and chlorpropamide or Diabinese) and the biguanides (including phenformin or DBI or Meltrol).

Although these agents were once thought to be a panacea, their role in the treatment of the patient with the insulin-independent type of diabetes is a subject of current controversy. The controversy is based on interpretation of the results of a large research study by a group of 12 universities cooperating as the University Group Diabetes Program (UGDP). The Food and Drug Administration (FDA) has supported the findings of the UGDP, and has required altered labeling of these drugs. These findings were that in patients treated with the oral agents tolbutamide and phenformin, used over a prolonged period at a fixed dose, there was a statistical association with a higher death rate from cardiovascular disease than was seen in control groups treated with placebo or insulin. The patients treated were those with mild diabetes without symptoms. Controversy has been focused on criteria for selection of patients; the fixed dosage regimen used; extrapolation of the findings to drugs not tested; and extrapolation of findings to patients with more severe diabetes with symptoms, particularly older patients. No resolution of the controversy appears forthcoming. In the light of this, it would appear that the exact role of these agents cannot be clearly defined. However, it would appear that the previous statements that diet and weight control are the cornerstone of management of these patients need be emphasized and that these drugs be used only after due consideration of the controversial points and with the knowledge and consent of the patient.

f. Ketoacidosis

The most characteristic acute complication of diabetes is diabetic ketoacidosis, a condition in which the lack of insulin, often aggravated by the stress of an illness or injury, leads to pronounced elevations of glucose in the blood, large amount of glucose in the urine, large loss of water and salts (dehydration), and an accumulation of substances derived from the rapid breakdown of the body fat called ketones. Treatment of ketoacidosis is complex and ideally should be carried out in a hospital by a physician thoroughly familiar with the extensive metabolic derangements which characterize this disorder. Delays of an hour or two in recognition of ketoacidosis may decrease the chances for survival; hence, the need for education of patients, members of the family, and all nurses and physicians in the nature and initial treatment of the disorder. Untreated, ketoacidosis is inevitably fatal; treated, it usually can be corrected within 24 hours. The frequency of diabetic ketoacidosis is, to some extent, a measure of the success of the education to the public in recognizing early symptoms of diabetes, and the quality of instruction given to persons with previously known ketosis-prone diabetes. It is still a common problem in certain areas of the country and among some subgroups of the population.

Hyperosomolar coma superficially resembles ketoacidosis but afflicts the person with adult-onset diabetes. As in ketoacidosis, the blood glucose is quite high, and treatment consists of the administration of insulin and solutions of water and salt.

g. Neuropathy

Diabetes affects nerves in a variety of ways. Nerves in the person with diabetes are vulnerable to pressure. Habitual crossing of the legs may enhance deterioration of the nerve running to the muscles of the front part of the lower leg, so that the person cannot walk without dragging his foot. Painful burning and "pins and needles" sensations may develop either early or late in the course of diabetes. Generally this painful variety of diabetic neuropathy (sometimes called "neuritis") affects the feet and legs most severely, but may also involve the hands and other parts of the body. Fortunately, this painful phase usually lasts only a few months or one or two years; but while it is present, the person may be disabled to a considerable degree. No effective treatment is available for this problem, other than pain-relieving drugs.

There is often also an insidious and often unrecognized loss of sensation in the feet and hands with longer durations of diabetes. The inability to perceive pain in the feet may result in serious injuries from burns or trauma. When the foot lacks normal sensation, the tissues often heal poorly after even minor injuries. A callus on the sole of the foot may ultimately cause such injury to the tissues under it that an ulcer or open sore develops. This may become infected and necessitate amputation of the foot or leg. Impaired sensation in the fingertips is so common in long-standing diabetes that it is usually not possible for the person who has lost vision from diabetic retinopathy to read Braille.

Diabetic neuropathy may cause sudden pain or weakness in the upper legs and pain about the trunk.

Some of the semi-automatic controlling mechanisms of the bladder, blood vessels, and intestinal tract may be affected in diabetic neuropathy. This is called "autonomic" neuropathy. Rarely, the bladder may lose sensation to the extent that large amounts of urine may accumulate and emptying is incomplete without the person being aware of anything wrong. Control of diabetes is made more difficult in this situation, since tests of the urine for glucose no longer reflect the immediate state of the blood glucose. An operation to open the neck of the bladder and bladder training procedures may be of help. Impotence is not uncommon in diabetes and appears to be the consequence of autonomic neuropathy; hormone injections are of no help. Of course, men with and without diabetes are equally vulnerable to psychologic

impotence. Penile prostheses have been implanted surgically in a small number of patients troubled by impotence.

Impairment of the nerves controlling the caliber of blood vessels interferes with the automatic blood pressure controlling adjustments which compensate for changes in posture. The person with this form of diabetic neuropathy may have a sudden fall in blood pressure when he stands and fainting may result. Medicines designed to elevate blood pressure and tightly-fitted garments which apply pressure to the lower part of the body may make it possible for such a person to resume reasonably normal activity.

Involvement of the nerves supplying the intestines may cause intermittent diarrhea, sometimes with impairment of the absorption of nutrients and a consequent malnutrition. The use of small amounts of antibiotics to correct an abnormal growth of bacteria in the intestinal tract may at times control such diarrhea.

Investigations into the nature of diabetic neuropathy suggest that the myelin sheath (the "insulation" around each nerve fiber) deteriorates. Several possible metabolic derangements have been identified in the diabetic nerve, but none of these have permitted an effective means of treatment. A view that neuropathy(and perhaps other complications of diabetes) develops independent of the insulin lack implies that control of glucose levels will not prevent or delay these complications. The contrary view, that neuropathy and other complications are consequences of the metabolic derangement which is characterized by elevation of blood glucose is more widely held, but generally conventional means of controlling blood glucose have not been clearly effective in preventing or relieving the complications.

h. Diabetes and the Eye

Diabetes may affect the eyes in several ways. Temporary blurring of vision may occur as a consequence of large fluctuations in blood glucose. This is controlled by the ordinary measures of regulating blood glucose levels and does not constitute a long-term problem. Cataracts, which consist of a clouding of the lens of the eye, are more common and occur at an earlier age in the person with diabetes. The mechanism for cataract formation is thought to be the accumulation of sorbitol and fructose (close chemical relatives of glucose) within the lens as a consequence of persistently elevated blood glucose levels. If this hypothesis is correct, then better control of glucose should lessen the frequency of cataract formation. Once a cataract is formed, conventional cataract surgery is effective in restoring vision. Glaucoma may result from new blood vessels which grow on the surface of the iris (rubeosis iridis) and thus leads to blindness.

"The greatest threat to vision in diabetes is retinopathy. This tends to develop after several years of diabetes and becomes more severe in the second and third decades of the disease. The small blood vessels in the retina (the retina is the thin lining of the back portion of the eye which is sensitive to light and can be thought of as corresponding to the film in a camera) become fragile, bleeding occurs into the substance of the retina and into the interior of the eye, and ultimately vision may be lost. Diabetes is a common cause of blindness and accounts for perhaps 8-16% of all blindness." It is estimated that 90% of persons who have had diabetes more than 20 years will have evidence of retinopathy.

While removal or destruction of the pituitary gland causes improvement in or stops the progression of retinopathy in a substantial proportion of cases, the risks and medical problems associated with this procedure are regarded as ordinarily outweighing the benefits and now the procedure is seldom performed. The directing of a beam of intense light into the back of the eye is used to destroy tufts of new blood vessels, the most common source of serious bleeding. This process is called photocoagulation, or laser therapy. When scar tissue or accumulated blood in the central part of the eye interferes with vision, it is sometimes possible to remove this barrier to light by an operation called vitrectomy. These modes of therapy still leave much to be desired, although they are helpful, and new methods of treatment or prevention are greatly needed.

i. Diabetes and the Kidney

Diabetes may adversely affect the kidneys. If bladder emptying is impaired by diabetic neuropathy, back pressure of the urine and chronic infection may cause kidney function to deteriorate. Urinary infection is thought to be more frequent in diabetes and may cause serious damage to the kidneys, a process called pyelonephritis.

The most common mechanism by which diabetes affects the kidneys consists of thickening of the small blood vessels and other components of the tiny filtering devices in the kidney called the glomeruli. This process is called diabetic nephropathy, and tends to occur in the second to fourth decades after the diabetes has been discovered. There appears to be a progressive increase in incidence of nephropathy over this time. However, prevalence of nephropathy tends to plateau with approximately 40-50% of patients with diabetes for 30-40 years ultimately developing the condition. The kidney gradually fails in its task of disposing of the waste products of the body; blood pressure is elevated and heart attacks or stroke are more likely to occur. The accumulation of waste products in the blood can be slowed by a diet restricted in protein. When this procedure no longer will keep the level of waste products within acceptable limits, then their

removal can be accomplished by a process of dialysis. This requires a rather elaborate machine and must be carried out at intervals of a week or less in treatments lasting a number of hours. Transplantation of the kidney promises a better chance of survival and greater convenience of living than does dialysis, but the surgical and medical resources required for transplantation and the difficulties of obtaining donor kidneys greatly limit this procedure.

Nephropathy remains the greatest threat to life in juvenile-onset diabetes. Current methods of treatment are not satisfactory, and only further research in the basic metabolic disturbances of diabetes is likely to yield better therapeutic or preventive measures. It would appear particularly important to define the apparent subclasses of diabetes that are susceptible to nephropathy, and those protected from it. Based on the maximum prevalence of 40-50% of patients at risk after 30-40 years of diabetes, such subclasses appear to exist.

j. Vascular Disease in Diabetes

Atherosclerosis, commonly called "hardening of the arteries," is a process of deposition of cholesterol and other fats in the lining of the larger and medium-sized arteries with associated changes in the muscle and connective tissue cells of the walls of these blood vessels. The result of this is irregular narrowing of the channel through which the blood flows, and, at times, a weakening of the wall. Atherosclerosis occurs with greater frequency and often at an earlier age in the person with diabetes. Sustained elevated blood pressure (hypertension) may increase the hazards from atherosclerosis. Elevated levels of cholesterol or triglycerides in the blood may contribute to atherosclerosis, but are not a necessary condition for this complication to develop.

When the coronary arteries are involved, portions of the heart muscle may be deprived of an adequate blood supply and a heart attack (myocardial infarction) can result. When the vessels to the brain are affected, a stroke (cerebral infarct) can occur. Although heart attacks and strokes are encountered more frequently in persons with diabetes, the most striking manifestation of atherosclerosis in diabetes is the narrowing of the arteries leading to the lower part of the body. This process is sometimes called arteriosclerosis obliterans. While this can occur in the nondiabetic individual, it is far more common in diabetes.

The likelihood of developing coronary disease can be roughly quantified by measuring a number of personal characteristics called risk factors. Among these factors are age, male sex, elevated blood pressure (hypertension), elevated blood cholesterol, cigarette smoking, diabetes mellitus, obesity, and physical inactivity. On the average, diabetics are more obese, have higher blood pressure, and

higher blood fats than nondiabetics. It is therefore likely that more than 37% of the diabetic population has at least two of the three major cardiovascular risk factors.

Some risk factors (e.g., age and sex) are inherent and therefore not easily modified; the majority of risk factors, however, can be modified completely or in part. Studies currently being conducted will soon define which risk factor(s) should be modified and how vigorously in diabetics and in the general population. The prudent advice to the general population of cessation of cigarette use, attainment of ideal weight, and regular moderate exercise would seem particularly appropriate for diabetic patients. Those with hypertension and blood fat abnormalities should have specific therapy including diet and, if needed, medication.

Specific treatment of established coronary artery disease and its sequellae -- angina myocardial infarction -- by medical and surgical means is essentially the same in persons with diabetes as in others with these problems.

Decreased blood flow to the legs results in susceptibility to infection. Pain may be provoked by walking, a symptom called claudication. Minor injuries to the feet or toes may result in serious infections, and the ultimate need for amputation. Prolonged hospitalization is often required for the healing of injuries to the blood-starved foot. Arteriosclerosis obliterans is a common cause of prolonged disability. The use of tobacco narrows the small blood vessels and further deprives the tissues of their blood supply; smoking is most undesirable in this condition. Medicines to increase the flow of blood are only marginally effective. Operations or injections to interrupt the autonomic nerves to the legs (sympathectomy) may increase blood flow somewhat, but often the process of neuropathy has already resulted in this interruption of nerve function. Operations to bypass narrowed segments of the large arteries in the abdomen or legs have been effective in restoring the flow of blood to the lower portion of the legs. Whether such an operation is possible in a given individual is determined by special X-rays performed after the injection of a dye into the large artery in the abdomen.

Prevention of atherosclerosis rather than corrective surgery is perhaps our greatest need. It is reasonable to believe that good control of diabetes and dietary modification to help correct any elevation of blood cholesterol or triglycerides will delay atherosclerosis, but we have no convincing proof that this is true. In addition, since the diabetic population is at increased risk of vascular complications, a risk which is not entirely explained by concomitant risk factors, it

appears that a recommendation for risk factor modification should be even more rigorously proposed here than for the general population.

k. Care of Feet

Among the complications to which people with diabetes are susceptible, potential damage to the feet offers some of the best opportunities for prevention through proper care.

Both diabetic neuropathy and diabetes associated vascular disease predispose to injury and infection in the feet, and at times, gangrene, requiring amputation. Education in proper foot care can do much to prevent injury or infection. The services of a podiatrist can often be extremely valuable in demonstrating proper self-care of the feet and in treating various potentially dangerous foot problems.

Judicious treatment is important, including avoidance of most commercial preparation "corn cures" which can do more harm than good.

There are major needs for:

1) more educational materials on foot care,

2) more accessible foot services,

3) review and control (e.g., by FDA or similar agency) of commercially available foot products,

4) education of other professionals in proper foot care, and

5) the inclusion of evaluation of the feet in multiphasic screening.

l. Lipoatrophy and Lipohypertrophy

Areas of fat loss (lipoatrophy) or fat accumulation (lipohypertrophy) appear in some patients near insulin injection sites. They can usually be prevented by rotation of injection sites to multiple regions of the body (thighs, upper arms, abdomen, buttocks) and multiple areas in each region. Lipoatrophy can be treated by injection of "single peak insulin" into the periphery of lipoatrophic sites. If such therapy fails, "single peak pork insulin" or "single component pork insulin" (the most highly purified insulin available) may be used for treatment of lipoatrophy. Lipohypertrophy remains a problem without effective therapy.

m. Diabetes and the Skin

The skin may undergo characteristic changes in diabetes, but ordinarily these are mainly a cosmetic problem. Areas of yellow-brown pigmentation with depressed centers, an inch or more in diameter, called necrobiasis lipoidica diabeticorum, may occasionally appear on the skin. These are quite characteristic in appearance. The use of cortisone-like agents injected into the margins of these areas may be helpful. Small brown spots which resemble superficial scars are seen frequently on the shins of persons with diabetes, but ordinarily are scarcely noticed. Itching of the skin traditionally has been regarded as a sign of diabetes, but there is little evidence that generalized itching is a consequence of diabetes. Infections of the mouth, vagina, or genital areas with a fungus of the Candida genus are common and may cause severe itching; generally such an infection can be treated more successfully if the blood glucose levels are adequately controlled. A number of available medications are reasonably effective in the treatment of infections with Candida and Trichophytosis (athlete's foot). Other skin changes or disorders which have some association with diabetes include: vitiligo (splotchy areas of loss of pigment), hemochromatosis (a browning of the skin with deposits or excessive amounts of iron in the skin, liver, pancreas, and other organs), and lipodystrophy (a shriveling up of the fat beneath the skin). Hemochromatosis can be treated by periodic withdrawal of blood to decrease the stores of iron in the body.

Except for perhaps necrobiosis, there are no outward signs by which a person can be identified as having diabetes. There are no distinctive patterns of hair growth or hair loss, and no changes in facial features which are characteristic of diabetes.

n. Infections in Diabetes

Diabetes may render a person vulnerable to a number of infections, some common and some rare. Boils, carbuncles, and fungus infections are more common in diabetes, but usually only if the diabetes is poorly controlled. Urinary infections are more common, perhaps because the presence of glucose facilitates growth of bacteria in the urine. Inflammation of the gums and about the roots of the teeth (periodontal disease) is more common in diabetes and it is advisable that persons with diabetes consult their dentists regularly and take meticulous care of their teeth. Treatment of all infectious diseases is constantly being improved, and it is likely that with the development of new antibiotics and other anti-microbial agents, infections can be controlled more readily in the presence of diabetes. (Infections of the skin are also discussed in the section on Diabetes and the Skin.)

o. Pregnancy and Diabetes

Pregnancy in the woman who has diabetes can be a major problem. Diabetes occurring at this age is ordinarily of the ketosis-prone variety, and pregnancy itself tends to cause the development of ketones. The need for insulin gradually increases during the course of pregnancy, and the woman is more vulnerable to ketoacidosis. Immediately after the delivery the need for insulin decreases to near zero levels for a few days, and she is quite vulnerable to insulin reactions. Careful control of the diabetes through pregnancy confers the best chance for a successful outcome. The risk of pregnancy to a woman is very little greater if she has diabetes than if she does not. On the other hand, the risk to the infant is appreciably greater, and even under the best of circumstances, the changes for the infant dying either before or shortly after birth are appreciably greater than for the nondiabetic mother. Because of the uncertainties of the outcome of pregnancy in diabetes, some women with diabetes choose not to become pregnant. Many factors are involved in this decision, and the physician often will spend considerable time in discussing the various factors in a pregnancy with prospective parents.

Pregnancy causes many complex changes in the functioning of the body, and these are intimately related to insulin, growth hormone, and other hormonal changes which are disordered in diabetes. It is possible that research will yield tools which will permit a better chance of a successful outcome in pregnancy for the woman with diabetes.

Indications of diabetes may develop during pregnancy and disappear after delivery of the baby. This is called "gestational" diabetes and may be a precursor of diabetes to come in later life. Gestational diabetes increases the risks associated with pregnancy, but to a much lesser degree than in the frankly diabetic mother.

There is no clear evidence that the father having diabetes influences the health of the baby, but the question has been raised.

p. Psychological Aspects

The psychological cost of diabetes is enormous, even though it cannot be measured accurately in dollars. This results from the unique demands and threats that diabetes imposes on the patient and his family. These involve daily medication (often including daily injections), the need for adherence to a dietary regimen, frequent testing of urine specimens, regulation of activity, and frequent physician visits. The immediate threats of diabetes are those of insulin reactions or of life threatening ketoacidosis. In addition, the long-term problems of potential blindness, kidney failure, and premature death hang as a type of Damocles sword over the patient and his

family. Diabetes thus has the strong potential for bringing to the surface any psychological vulnerability in the patient or his family."

These issues are most dramatically seen in the child with diabetes. The initial diagnosis can bring shock, grief, and anxiety to the family, and may be accompanied by a "Why me?" depression in the child. The quality of the emotional repair process which then ensues can have long-term consequences to all the members of the family, not just the diabetic child. If the family becomes focused about the child who has diabetes, significant problems are likely to occur in the husband-wife, parent-other children, and the sibling-sibling roles and relationships. It is not uncommon for diabetic children to "use" their disease or to manifest behavioral disturbances which involve the diabetic regimen. Just as diabetes may be a trigger for emotional difficulties, it is also clear that emotions can play a definite role in the course and control of the diabetes. In its most glaring example, children have been described whose emotional arousal can directly and causally lead to diabetic acidosis. It has been estimated that pediatric diabetologists spend at least 50% of their time with patients providing emotional support and counseling, but the results of this are often rather mixed.

Although the preceding paragraph has been addressed to the emotional impact of diabetes on the child, it is equally clear that the diagnosis of diabetes in an adult can have serious emotional sequela in that patient and his family. The demands, threats, and the long-term problems of the disease are the same. It is equally obvious that failing vision secondary to diabetic retinopathy can have emotional consequences not only to the patient, but to his spouse, children, friends, employer, and society at large.

The traditional response of the medical profession to these problems has been, all too often, to give it lip service as being "terribly important," and then to disregard it as a major factor in management. To be fair, part of the reason for this "lip service" relates to the absence of a large first class body of sound scientific knowledge in this area which would guide therapy. Aphorisms such as "know thy patient" and "individualize therapy" are used to cover the lack of knowledge. Paradoxically, emotional consequences are sometimes used to justify a regimen which may be less than medically optimal, as when a physician chooses to disregard serious overnight hyperglycemia because the introduction of a second injection of insulin will cause major upset to the patient and the family.

What this means, in vastly oversimplified terms, is that there is in diabetes a complex relationship between the patient, the family, the physician, and the disease. Disturbances in these interrelationships have a significant impact on the patient, the family, and the medical outcome of that patient. The resultant costs to the family in terms of pain and suffering are not accountable in terms of

dollars, but there are heavy monetary costs to society at large due to excessive hospitalization, loss of time at school or work, and likelihood that poor control may lead to earlier development of significant vascular damage. Part of the current difficulty in this area stems from the fact that traditional medical practices focus almost exclusively on the individual patient. This is clearly insufficient in a chronic disease such as diabetes. The best possible care can only be delivered when a patient and his illness are viewed within a social context. In other words, what diabetes does to the whole family, and how that family handles the appearance of diabetes, are important variables in the ultimate outcome and cost of the given individual's disease.

It would appear clear from the above consideration that recognition of the social and emotional context of diabetes forms an important part of the overall care in this illness. In order to provide guidance for the conscientious physician and to move away from aphorisms, it will be necessary to support research which will expand scientific knowledge of the key relationships between patient, family, physician, and disease. Only then will we be able to move into an era in which specific diagnosis and rational therapy will provide the much needed help in this important area.

q. Treatment Needs of Children with Diabetes Mellitus

When diabetes occurs in children, it demands special consideration because of the nature of the disease, its treatment, and the associated acute, intermediate, and long-term complications.

It is currently estimated that there are 86,000 children with diabetes in the United States. When the disease appears at this early age, it usually presents itself in its most malignant form and requires special skills, knowledge, and stability among the patients, their families, and those who care for them.

The onset of the disease is usually rapid and frequently fulminating. Most children need to be hospitalized immediately and treated vigorously. Insulin and diet therapy are immediately initiated and metabolic stability re-established. Family members and the patient must be instructed in the nature of the disease, its treatment, and the demands it will make upon the household and those with whom the child associates. Without skillful professional guidance and support, this sudden transition from a normal child to a "diabetic" can be overwhelming for families. Emotional support as well as physiological must be available.

When these children are discharged from the hospital, they are not cured but must carry out a rigorous therapeutic plan every day of their life if the disease is to be controlled. The degree to which

diabetes can and should be controlled on a day-to-day, year-to-year basis as well as the effectiveness of control is the subject of a major therapeutic controversy.

There is no doubt that the acute complications of insulin reactions and acidosis can be minimized by close control as can the intermediate complications associated with growth and development. The effect of control upon the long-term complications associated with the small blood vessels has been questioned.

There are no long-term prospective studies available which positively prove that existing modes of treatment for diabetes mellitus can successfully prevent the long-term complications associated with the disease. Current modes of therapy consist primarily of diet, exercise, and insulin. It is conceivable that perhaps these therapeutic modalities are sufficient to control the disease if they could be delivered in an appropriate manner to the patient. Current enthusiasm for the development of an artificial pancreas lies not in the development of a cure but in the invention of a new mode of delivering an existing medication; namely insulin. Evidence is beginning to accumulate that control of the level of glucose in the blood using insulin, diet, and exercise is effective in minimizing long-term complications associated with the disease in animals and in some groups of patients. The effects of the rigidity of such a therapeutic plan upon patients, their family members, the health professionals involved, and society in general frequently demands more wide-spread knowledge, acceptance, and compliance than our present day society possesses. The daily demands of predetermining physical activities, eating five or six meals of prescribed quantity and quality, injecting oneself with insulin one, two, three, or possibly even four times a day, in addition to testing urine for sugar before each meal and at bedtime may have severe repercussions on those with the disease. The limitations of job activities and the shortened life expectancy together with the rigor of conducting such a demanding lifestyle has its effect on the emotional and physiological aspects of these children. This is particularly true when young children with diabetes are confronted with such devastating prospects as:

- Among juveniles with diabetes followed for ten years or longer -- 62% develop retinopathy.
- Twenty percent of those with juvenile diabetes develop hypertension after ten years.
- Among young diabetics who have their disease more than ten years, close to 100% demonstrate glomerulosclerosis.
- Approximately one-half of all juvenile diabetic patients now living will die of renal disease with a mean duration of life of approximately 25 years after diagnosis.

Quality health care for the child with diabetes demands knowledgeable health care professionals working closely with cooperative patients and their families. Currently, a "normal life" is never promised but together this team is responsible for providing the best disease control possible depending upon the individual child's needs and resources. It is obvious that thousands of children face an uncertain future which balances precariously upon the future discovery of new modes of therapy and upon the development of improved systems in which those discoveries are provided.

r. Hypoglycemia

When therapy for diabetes is instituted particularly in the juvenile or insulin-dependent diabetic patient a number of problems can be anticipated. One of the problems that invariably arises is the difficulty in achieving a balance between food intake and medication. The metabolic abnormalities leading to ketoacidosis and coma are important and potentially severe. Equally important are the manifestation of a low blood glucose level, hypoglycemia.

Hypoglycemia may be manifest in a variety of ways depending on the previous blood glucose level, the rate at which the hypoglycemia develops, and the absolute blood glucose level at hypoglycemia. Each individual diabetic patient's response to the variables noted above is distinct. Blood glucose levels which produce severe symptoms in one individual may produce no detectable abnormality or only minimal symptoms in another. Certain patients may respond with minor emotional changes such as irritability or changes in attitude while others may develop the classic symptoms of hypoglycemia including hunger, weakness, trembling, sweating, and progress on to unconsciousness or seizures. The most severe forms of hypoglycemia result in "hypoglycemic coma" or "insulin shock". It is the danger of these severe insulin reactions that is the limiting factor in attempting to control blood sugar.

Hypoglycemia is a potential problem for all diabetic patients, even those not requiring insulin, but this complication is increased markedly in the insulin-dependent diabetic and is an ever present threat in the more brittle diabetic. Indeed, every insulin-dependent patient with diabetes goes to bed each night with the danger of never waking up the next morning, should he have a severe insulin reaction during that night. Active children with juvenile diabetes are especially prone to hypoglycemia. Exercise particularly in varied levels when added to the insulin will lower the blood glucose level.

All patients and their families must be prepared to treat hypoglycemia. The milder symptoms may be treated orally with just sugar-containing food (sugar cubes, fruit juice, candy). More severe reactions may still be treated orally but with concentrated glucose or honey which can be absorbed from the mucosa of the mouth as well as the stomach. This is particularly important in partially conscious patients.

The most severe reactions require administration of intravenous glucose or injections of glucagon, a hormone which raises blood sugar. Every family of a person with diabetes should have glucagon available for emergencies and should have instructions in its use. Parents of children with diabetes should be sure school personnel have the ability to recognize and treat hypoglycemia, including the use of glucagon. It is through the early recognition and proper early treatment that the more severe complications of hypoglycemia can be prevented.

3. Future Direction in Modes of Therapy

The key to development of better modes of therapy for diabetes mellitus is a better understanding of the disease process. This involves better understanding at several levels: etiology and pathogenesis -- the nature of the defects that cause diabetes; classification based on pathogenetic mechanisms, severity of disease, and risk of complications; definition of what constitutes ideal metabolic control; clear understanding of the relationship between ideal metabolic control and the vascular complications of diabetes mellitus; understanding of the mechanism of development of complications; etc.

An area in which the development of new modalities of treatment will be extremely important is that relating to the prevention of onset of clinical manifestations of diabetes mellitus. Current concepts suggest that diabetes mellitus is a disease which has a genetic basis but is precipitated and mediated by environmental factors. Little is known relative to the mechanisms by which environmental factors precipitate the disease. Nutrition and eating patterns are important as the incidence of the maturity-onset type of diabetes mellitus increases in societies with Western culture diets and is markedly increased in the obese. Agents which can influence the hypothalamic control of eating and/or modify hypothalamic centers that influence glucose regulation offer very promising means of decreasing the incidence of adult-onset diabetes mellitus. Several recent studies raise the possiblity that some cases of the juvenile-onset type of diabetes mellitus may be the result of viral infection of the islets. If viruses do cause some cases of juvenile-onset diabetes mellitus then understanding epidemiological patterns, the isolation of the virus, and the production of a vaccine could eliminate these cases.

In those in whom diabetes has developed, ideally the rejuvenation of beta-cell function, to restore insulin secretion in response to usual physiologic stimuli, would correct diabetes. This might be possible pharmacologically (with new kinds of drugs) or biologically (e.g., with viruses which augment replication of beta cells -- a feat already achieved in tissue culture).

Basic science advances in the last decade have redefined our understanding of the complex biochemical and hormonal regulation involved in carbohydrate and lipid homeostasis. Disturbances at a number of different sites may lead to alterations of carbohydrate and lipid metabolism and diabetes mellitus. Characterization of such defects in man could lead to defining subclasses of diabetes mellitus which might allow us to associate specific types of biochemical defects with specific clinical courses of disease progression.

The same approach can be used to conceptualize the development of therapeutic agents that could correct the metabolic defects of diabetes mellitus. Synthetic insulin peptides could be developed to treat diabetes mellitus more effectively than the currently available natural insulins. Production of insulin from cultured pancreases may enhance insulin supply. Agents could be developed that increase insulin secretion. Similarly, hyperglycemia could be corrected by drugs that interfere with hepatic glucose production, activate insulin receptors, simulate insulin action within cells, potentiate insulin action or interfere with the actions of insulin antagonistic hormones such as glucagon, growth hormone, etc. The development of new drugs which act through such mechanisms is exemplified by somatostatin which is an agent that decreases hyperglycemia in diabetic patients probably by inhibiting glucagon secretion. While somatostatin will probably not be a useful drug because of the lack of specificity of its action and its possible toxic effects, it does provide a model compound which proves that agents other than insulin which affect the various sites in glucose regulation are potentially useful in the treatment of diabetes mellitus. Ideal maintenance of the blood glucose level in insulin deficient states could be achieved by an effective artificial pancreas or islet cell transplantation. Many technical and biological problems remain to be solved before either procedure can be a useful one for the treatment of patients. The artificial pancreas will need to be miniaturized and made error-free before the treatment of ambulatory patients will be possible. Islet cell transplantation carries with it all of the problems of tissue rejection which have not been solved for other organs yet. In addition, there is the question of the nature of the neurogenic control of the pancreas and of the ability of denervated islets to function normally.

These new modalities for management of diabetes mellitus have multiple problems associated with them, and have an unpredictable lag period of five, ten, or fifteen years before wide-scale use can be expected if they ever bear fruit. They, too, will have problems of delivery, compliance, and evaluation of effectiveness. Thus, approaches to better control of diabetes now are important, too. These include better ways to use insulin, increasing effectiveness of insulin, improving diet education and therapy. The latter is particularly

important, as it is often forgotten that diet is still the cornerstone of therapy of diabetes.

We need to have an expansion of nutritional research to better understand dietary effects on diabetes. We need better clinical nutrition education for health science students and practitioners. We need simpler instructional materials for patients, with trained diet therapists readily available.

There is need for more diabetologists who understand the basic information concerning child development. There is a need for more psychotherapists who have been exposed to non-psychiatric-patients with diabetes in order to understand the variety of ways in which diabetes affects family organization and child development. We need to carry out research which would evaluate the relationship of family organization to the outcome of juvenile diabetes. We should develop and validate screening procedures which can identify the "at risk" family and evaluate the effectiveness of early psychiatric intervention when emotional problems affecting behavior and diabetic management appear.

New approaches to specific problems of diabetes are also on the horizon. Drugs which inhibit ketogenesis may become effective adjuvants in treatment of ketoacidosis. Inhibition of glucagon secretion may also play an important role in therapy of ketoacidosis.

Some studies indicate that hyperglycemia may cause destructive changes in the lens and peripheral nerves by causing the intracellular accumulation of sorbitol. Aldose reductase inhibitors can inhibit the conversion of glucose to sorbitol and perhaps prevent the complications even if the hyperglycemia of diabetes is not corrected. Thus, there is the potential for therapeutic agents which do not lower the blood sugar, but prevent its deleterious chronic effects.

Similarly, it may be possible to develop drugs which inhibit basement membrance synthesis, and potentially prevent diabetic nephropathy.

Salicylate therapy, particularly calcium dobesilate, has been undergoing investigation as a means of preventing diabetic retinopathy. Its effects may be exerted by diminishing platelet aggregation, which has been found abnormal in diabetes and suggested to be a contributing factor in the development of retinopathy. Other agents which effect platelet aggregation may also have potential usefulness.

The problem of atherosclerosis which is the main contributor to morbidity and mortality of diabetes, has no easy answer. Vascular bypass surgery, which has been used, is a corrective measure late in the disease

process. Medications and dietary manipulations may alleviate some of the problem, but major new developments cannot be predicted.

A number of needs in specific areas of diabetic therapy, such as care of the feet, which have been described in the earlier section on present state of the art, should be included in a comprehensive approach to achieving better treatment for diabetes.

In summary, a better understanding of diabetes mellitus will lead to development of more rational and more effective modes of therapy. The developmental process is long and fraught with technical difficulties. It is complicated by uncritical endorsement of "cures" in the lay media at very premature states. A massive investigative effort is needed to better understand diabetes mellitus, and to develop safe and efficacious therapy that will be convenient to the patient.

B. DELIVERY OF HEALTH CARE

1. State of the Art

Diabetes mellitus is the fifth leading cause of death by disease in the United States and a cure is not imminent. Treatment of the disease is, therefore, essential. Even after a "cure" is discovered, its use and effectiveness must be longitudinally monitored and assessed; thus, treatment of those with diabetes will continue to be a vital part of our health care system for generations to come. Testimony before the National Commission on Diabetes supports this view, e.g., "I am deeply concerned that in our rush of pleasure over 'nearness of the cure' that we may overlook the necessity of excellent continued care for those who already suffer from diabetes." (J. Richard Morrow, Director, Community Crime-Prevention Program, Kirkland, Washington.) Consequently, it is imperative that research and training in the treatment and delivery of services be conducted if an effective comprehensive system of care is to be made available to all.

There is increasing evidence that proper management of diabetes can result not only in avoidance of the acute and intermediate problems associated with the disease but can minimize or possibly eliminate some of the devastating long-term complications. Despite the availability of effective medications and therapeutic regimes, most of the ten million diabetics in this nation are not receiving optimal care (documented repeatedly in testimony before the Commission). The mean life expectancy of a child with diabetes is still less than 30 years, and many of the 35,000 deaths from diabetes in this nation each year are premature.

Major reasons for current therapeutic failure include:

- Lack of understanding of the nature of the disease and its treatment among patients and health professionals alike;
- The inability of patients and health professionals to develop and carry out together effective treatment programs;
- Lack of availability and accessibility of diabetes education and treatment services for large segments of our population;
- Failure to provide health professionals with effective training in the delivery of health services; and
- Lack of appreciation, resources, and support necessary for conducting clinical and evaluative research in health care systems.

Effective health care for those with diabetes can be achieved only by informed patients cooperating with knowledgeable health professionals in an organized plan of treatment.

In this section we examine problems in the delivery of health care to people with diabetes under the following headings: Lack of Trained Professionals; Lack of Patient Education; Problems in Patient Partcipation in Prescribed Treatment Programs (Problems with "Compliance or Adherence"); Systems Problems in Health Care Delivery (Quality, Quantity, Organization, Distribution, and Financing); and Research Needs in Delivery of Health Care.

a. Lack of Trained Professionals

Repeatedly, throughout the public testimony to the National Commission on Diabetes, patients or members of their families complained of their inability to find knowledgeable or interested health professionals to care for their disease. One professor of pediatrics testified that ". . . only a handful of pediatricians have had the training to care for children with diabetes. . . as a result the children, who need and deserve the very best care and management to safeguard normal growth, development and maturation. . . in fact get the worst of medical care" (1). There is currently no way to identify or determine the number of physicians in other fields of health care competent to manage diabetes; however, the editor of the most eminent publication in the field of

diabetes stated before the Commission that ". . . the fact is that probably 90% of the diabetics in the world are and will always be treated by the general physicians of the world. . . and you must pardon a struggling physician who may treat 50 to 70 patients daily, if he either does not know, does not have time, or thinks that other conditions have higher priority" (2).

The inadequacy of professional schools to provide appropriate information about diabetes in their curricula and training programs have been previously documented in this report (3). The lack of training, understanding, and knowledge of diabetes has also been identified in other health professions. In a study among a group of 289 graduating nursing students attending six schools of nursing, it was demonstrated that 11% of these students had no understanding of an insulin reaction and 18% could not tell how many units of insulin were in one-half cc of U80 insulin (4). Other basic concepts such as how diabetes and its management related to exercise and illness were inadequately answered in 33-45% of those tested. Among the 96 dietitians evaluated, the same discouraging profile was obtained. Similar results among allied health professionals have been reported by others. This lack of knowledge of current medical therapy among practicing health professionals was recognized in the Carnegie Commission Report in 1970 (5). One of the recommendations of that indepth, nation-wide investigation was that certain sites be selected throughout the country where continuing medical education centers would be located. In this manner, it was hoped that the information accumulated in medical schools and research centers could be better disseminated to those health professionals actually providing patient care. The report of the President's Commission on Heart Disease, Cancer, and Stroke was submitted to Congress and similar findings were noted (6). Again, it was reported that existing advances in research and knowledge generated in our medical schools were not reaching those caring for patients. Thus, nation-wide surveys have only verified what had been reported in a variety of local or regional reports. The results of these studies clearly indicate that there exists a severe deficit in the delivery of the most current methods of treatment to most of the ten million individuals with diabetes in this nation.

b. Lack of Patient Education

The essential role of the patient in the management of his own disease is only beginning to be appreciated (7, 8). The recognition that the patient is the major deliverer of health care in the management of chronic diseases promises to initiate a revolutionary advancement in health care. In the field of diabetes, more than 99% of the day-to-day control of the disease is dependent upon the efforts of the patient and/or members of his family. For instance, a reasonably well-controlled diabetic patient may see his physician at two to three month intervals

and at each visit may perhaps spend as much as an hour seeing a physician, nurse, and dietitian. If this occurs four times annually, the patient receives four hours of direct medical care per year; during the other 364 days and 20 hours, the care provided is by the patient. Patients with diabetes, both adults and children, are responsible for doing urine tests several times each day; closely watching their diet; regulating their exercise; giving insulin or taking an oral hypoglycemic agent daily; recognizing, responding to, and preventing associated acute complications to the extent possible.

In order to carry out their responsibilities effectively, patients must be educated. In 1956 Beaser demonstrated the inadequate understanding of the disease among a large group of adult diabetics questioned (9). In 1962 a similar lack of knowledge was demonstrated among a group of children with diabetes (10). It was evident that these children had little knowledge of the effect of insulin on the blood sugar or of its actions. In most instances these children were unable to identify the needs for changing medication, and their awareness of diabetic acidosis, a severe acute complication of the disease, was exceedingly poor. It was postulated that because of their age, this deficit in children's knowledge may have reflected a dominant role of parents in the management of the disease. Accordingly, a knowledge test among parents was carried out and exposed again a gross lack of knowledge which indeed could be life-threatening (11, 12). Williams (13-15) and Watkins (16) have also demonstrated lack of knowledge, skills, and compliance among patients with diabetes. For instance, it was found that among insulin-dependent diabetics, 65% made significant errors while administering their insulin. In 1965 the National Health Survey demonstrated that most individuals with diabetes in the United States had inadequate knowledge of their disease and its management (17, 18). The survey revealed that while 77% of all people with diabetes in this nation were placed on dietary management, less than 10% of that grouping had sufficient information to carry out the physicians' recommendations.

Failure of patients to understand their roles and perform skills related to disease control, prevents their active participation in the newly emerging systems for health care. A lack of appreciation and acceptance of patient education is still reflected by the majority of the health care profession and by the numerous bureaus, agencies, industries, and third party payers responsible for health care planning and reimbursement. In order to assume the responsiblities necessary in one's own health management, the individual has to be taught certain skills and be motivated to carry them out. Payment for patient education is currently rejected by most third party payers, health care facilities, some health professionals, and even patients themselves. It has only been within the past three years that the American Hospital Association (19; Appendix F1), American Group Practice Association

(Appendix F2), American Diabetes Association (Appendix F3), and American Medical Association (Appendix F4) have accepted the concept that patient education is "an integral part of quality health care." While these policy statements have been verbalized and written, they have yet to be implemented. The same situation exists among third party payers such as Medicaid, Medicare, and Blue Cross (20, 21; Appendix F5, 6).

Significant improvement in the treatment of diabetes cannot be made until patients, children, and adults alike, understand the nature of their disease, are taught to carry out the necessary skills and are willing to cooperate with health professionals in its control.

c. Problems in Patient Participation in Prescribed Treatment Programs (Problems in Patient Compliance or Adherence)

In diabetes mellitus, more than in almost any other disease, the likelihood of success in current methods of treatment and control of the disease depends upon the degree to which the patient (and his family) carry out or adhere to the therapeutic regimen. As noted previously, day-to-day, even hour-to-hour, patients must manage their food intake, their activities, their insulin or oral hypoglycemic medications; they must test and record their urines; they must give careful attention to skin and feet, be prepared to handle emergency or untoward situations affecting diabetic control, and must have a dependable continuing relationship with their physicians and associated health professionals. Unless these therapeutic measures are carried out effectively and continuously by the patient, there is little point in initiating them in the first place.

In most therapeutic situations in diabetes (as in other chronic diseases) we fail to achieve the desired treatment results for a variety of reasons including difficulty in patients adhering to prescribed measures. For example, in studies of actual observation of patients:

- Sixty-five to 90% of patients studied had major deficiencies in the types of food selected, in proper spacing of meals or snacks, and/or in regularity of diet;

- Among patients on insulin, three out of five made errors including incorrect dosage compared to the physician's prescription and errors in measurement, with frequency of medication errors increasing with the duration of diabetes;

- Among patients taking oral hypoglycemic agents, one in four were omitting doses weekly or more often;

- Three out of four patients studied did not test or record their urines, or made errors in doing or reading the test such that their information would actually have been misleading to physician or nurse;

- Half the patients did not carry out acceptable foot care (13-16).

Difficulty in adherence to prescribed treatment is recognized as a general problem in treatment of both acute and chronic conditions. See, for example, the review by Marston (40), as well as Becker, et al. (37), Tagliacozzo, et al. (41), and Caplan (38). A number of efforts have been made to obtain a better understanding of poor compliance and to achieve improved patient adherence to therapeutic regimens, (13-15; Watkins et al. 16, 42) in patients with various chronic diseases including diabetes (Becker, et al. 37, Tagliacozzo, et al. 41) and in various acute pediatric conditions, as for example reviewed and studied by Caplan (38).

Our understanding in the field of patient compliance is fragmentary. The evidence indicates there are multiple factors involved, including inadequacy of professional education, communication problems between professionals and patients, an absence of planned systems, materials, and programs for patient education, and a lack of motivation.

Models to explain patient behavior in carrying out preventive health measures or in complying with therapeutic measures have been developed, perhaps the most explicit of which is that of the "health belief model" tested by Becker, et al. (37). In this model and other related work, emphasis is placed on motivational factors to lead to better compliance such as patient perception of the severity of the disease problem, plus some "cue" to action such as immediate symptoms, or professional advice, or a specific prescription. Another area of importance in compliance emphasized in the work of Davis (39), Williams, et al. (14), and Roberts (45), is the nature and extent of the interrelationship between patient and physician, and patient and family.

Virtually all studies of compliance behavior to date have been retrospective or cross-sectional. Thus, the possible cause and effect relationships between patient characteristics, or characteristics of the therapeutic situation, can only be inferred.

d. Systems Problems in Health Care Delivery (Quality, Quantity, Organization, Distribution, and Financing

Health care needs in the United States are changing rapidly. New diagnostic procedures and therapeutic agents are being discovered almost daily, and it would be expected that the system of delivery of these services would also change rapidly. Unfortunately, this has not been true. Health care in this nation is still delivered in an antiquated manner, episodic in nature and in response to the acute needs of the patient population.

In 1900 leading causes of death were infectious in nature (22). (See Figure 1). Most of these diseases appeared abruptly; the patient quickly reached a crisis and either succumbed or survived, frequently without any after effects. It is on this model that health care in the U.S. was developed and persists today.

In 1974 the leading causes of morbidity and mortality in the U.S. were chronic diseases (23) (See Figure 2). This change has resulted in dramatic changes and the major health care needs today are the management or control of long-term disease processes.

Currently in this nation the three primary areas of greatest concern in health care delivery revolve around the quantity of health care available, its quality and its financing. It was thought that perhaps all three of these concerns could be most efficiently addressed by initiation of health care teams. It was reasoned that allied health personnel trained indepth in specific areas can function efficiently in a team situation where properly supported and supervised. Such teams can and have contributed significantly to improve health care. The grouping of many specialized personnel such as nurses, dietitians, physicians, podiatrists, pharmacists, physician assistants, etc., into organized teams continues to be encouraged with the hope that this will provide improved, indepth care.

The professional "team" concept has many commendable aspects. However, the greatest error in this reorganization of the health care system is that the patient has not been recognized, prepared, motivated, and accepted as a participating member of the team, as detailed by Maria Alogna, R.N., in testimony before the National Commission on Diabetes.

Medical treatment in the United States has been delivered on what many individuals have classed as a "cottage system" in which small groups of health professionals provide care in an unplanned manner according to their immediate individual or group abilities and resources. Little effort has been made to plan treatment of chronic diseases or the maintenance of health over long periods of time. This nation still

FIGURE 1

CAUSES OF DEATH - 1900

1. Tuberculosis
2. Nervous system diseases other than meningitis.
3. Pneumonia
4. Diseases of the circulatory system
5. Diahhrea and Enteritis
6. Other diseases of the respiratory system
7. Other diseases of the digestive system
8. Bright's Disease and Nephritis
9. Violence other than suicide
10. Early infancy

U.S. Bureau of Census, Mortality Statistics 1900 to 1904

Document #C3.40:1900 to 1904

FIGURE 2

DEATH RATES FROM 10 LEADING CAUSES OF DEATH IN THE UNITED STATES, 1974, BASED ON THE 10% SAMPLE OF DEATH RATES PER 100,000 POPULATION

1. Heart
2. Malignant neoplasms
3. Cerebral Vascular Disease
4. Accidents
5. Influenza and Pneumonia
6. Diabetes Mellitus
7. Cirrhosis of the Liver
8. Arteriosclerosis
9. Certain causes of mortality in early infancy
10. Suicide

Monthly Vital Statistics Report, Table C, Provisional Statistics Annual Summary for the U.S. Vol. 23, No. 13, 1974. (Dated May 30, 1975)

perpetuates an episodic form of health care. Such lack of organization results in duplication of efforts, inefficiencies, and often, undue costs.

Planned delivery of care also requires leadership and most health care "teams" function without trained leadership. Physicians by virtue of history, malpractice liability, and extensive education have assumed "team" leadership. Unfortunately, most physicians rarely have received training in administrative, procedural, financial, or personnel policy making. Thus, as health care systems are beginning to reorganize, they lack trained leadership and are limited to participation by health professionals only.

Knowledgeable health professionals and informed patients are essential if we are to improve the health of those with diabetes. It is imperative that consumers and providers of health care alike work together in a cooperative manner. Effective, cooperative efforts demand that each participant understand his/her role; is capable of carrying it out; and does so at the appropriate time. In order to accomplish any task through "team work," it is necessary to plan the effort and assign responsibilities. The use of medical resources (people and facilities) together with patient education and participation in a manner that is pre-planned constitutes the health care delivery of the future. Participation of numerous individuals in a health care system requires that there be identified and designated responsibilities. This permits appropriate training and encourages each (patients and health professionals) to carry out his/her specified role. Such planning permits a comprehensive cooperative system of care to evolve.

One approach to such planning is illustrated in the proceedings of a conference on "The Education and Management of the Patient with Diabetes Mellitus" held in 1972 in Minneapolis (24). The conference participants enumerated the responsibilities required of the health professionals and designated who might best perform these tasks. In a similar manner, patient tasks were identified. Methods of determining patient comprehension or skills acquired were noted as well as which health professionals might be most responsible for educating and monitoring care programs.

The Committee on Treatment of The National Commission has analyzed and characterized the continuum of tasks required for the control of diabetes mellitus throughout the course of the disease (summarized on Charts 1-17 in Appendix B). This analysis resulted in the identification of differentiable yet interlocked stages:

Stage I Awareness -- Detection of Signs and Symptoms (Charts 1 & 2)

Stage II	Availability and Accessibility of Health Care (Charts 3-6)
Stage III	Patient Assessment (Chart 7)
Stage IV	Patient Examination (Chart 8)
Stage V	Laboratory Studies (Chart 9)
Stage VI	Analysis and Diagnosis (Chart 10)
Stage VII	Informing Patient and Family (Charts 11 and 12)
Stage VIII	Initial Treatment Phase (Chart 13)
Stage IX	Planning Phase: Long-Term (Chart 14)
Stage X	Management Phase (Chart 15)
Stage XI	Education Phase (Chart 16)
Stage XII	Ongoing Evaluation (Chart 17)

In analyzing the needs and implications of each of these stages, the Committee has attempted to answer the following questions:

What tasks are required?

Are the tasks applicable to adults and/or children with diabetes?

Who performs the tasks?

How are the tasks provided?

Where are the tasks provided?

While detailed assessment of each stage requires the examination of individual charts (Appendix B), a few major findings or trends bear highlighting here.

- Perhaps more than in any other chronic disease, the patient with diabetes must be recruited into a therapeutic alliance with health care providers to share responsibility for the long-term management of the disease.

- A wide variety of health care providers will be needed, requiring that current providers increase both the quality and range of tasks they perform.

- The delivery of effective diabetes control will require the development and widespread utilization of comprehensive educational approaches for patients and health professionals.

- Both providers and consumers -- health care professionals, para-professionals, patients, and the general public -- must play significant and coordinated roles in health care delivery.

- Primary care is and will continue to be the dominant vehicle and focus of most aspects of diabetes control.

e. Research in Delivery of Care

Basic research in the development of therapeutic agents for the treatment of diabetes is frequently initiated in test tubes and progresses through cellular studies, small animal findings, and then is finally tested on primates. If these results are promising and no harmful effects identified, clinical studies are then conducted in a limited number of humans under close scrutiny of the Food and Drug Administration. The approved product is then marketed for all to use. No effort is made to evaluate how the product is used by practicing physicians or whether consumers comply to the prescribed therapeutic regime.

A glaring example is the current treatment of hypertension. It is estimated that half of the 22 million individuals with hypertension in this nation are undiagnosed; only half of these identified are under treatment and only half of those patients have their hypertension under control. This is in a disease where treatment is proven to be effective. The hope for successful treatment of hypertension is not alone in the laboratory where better drugs may be identified but more in research in the delivery system to make those modes of therapy already available more effectively used.

Failure to carry out research in the area of health care delivery in many instances may negate many important laboratory triumphs. Medical research cannot end with product development. It must include investigation into the area of service delivery and patient utilization. To date this concept has been poorly understood and there has been only token support for research. Today, health care is listed as the second largest industry in the United States. It is time that

significant investigative studies into the delivery of treatment be recognized and supported.

The difficulties in conducting longitudinal clinical evaluative research have been highlighted recently by the controversies over the University Group Diabetes Program (UGDP). After 12 years of planning, development, and implementation, this investigative study resulted in major disputes among health professionals and fright and confusion among the public (25, 26, 27). The failure to develop adequate tools for clinical measurements, and to utilize and interpret them effectively is evident. Creative investigation of medical treatment and service delivery must become an essential part of research in medical science. It is only through such evaluative efforts that laboratory discoveries of today will be integrated into tomorrow's quality care.

Diabetes is a particularly fertile model for experimental studies of planning and expansion of health care systems for mass population groupings, since it can serve as a prototype with measurable outcomes that can be applied to almost any chronic disease and even health maintenance. However, the results of only a few such studies have been reported, the most significant of which are summarized below.

In 1970 and 1973 Runyan reported a study of an experimental comprehensive health care system developed among a decentralized group of patients with chronic disease. The use of specialty nurses was guided by a protocol with physician and medical center backup. This involved 18 decentralized clinics; ten in urban areas and eight in semi-rural areas serving a population of 225,000. In addition to the clinics, mobile units extended medical care to more inaccessible places (28, 29, 30). Adapting such care to the needs of the population in 1973 resulted in over 40,000 visits by more than 9,000 patients with chronic diseases. A low missed appointment rate of 5-8% was due to easy accessibility and the personnel and reduced costs. The flow of patients from peripheral locations and secondary care facilities was enhanced and referral was expedited by planned liaison services among nurses involved with consulting physicians at the University Medical Center serving as medical backup. The cost of ambulatory care provided in the decentralized location was one-fifth the cost of comparable care received in the medical center. A visit to a neighborhood clinic costs $4.00 as compared to $20 for a hospital out-patient visit or $35 for an emergency room visit.

From an evaluation of hospitalization for the two year period before and after instigation of this program, it was found that there was almost a 50% reduction in hospital days. The decrease in total cost of medical care provided in this program was 49%. The high costs before the program was initiated were felt to be due primarily to the use of expensive ambulatory services and an increase in hospitalization.

The comprehensive program developed at the University of Southern California headed by Dr. Leona Miller has attempted also to make health care more accessible to an urban population (31, 32). It provides a seven-day-a-week, 24-hour hot line availability for patients and offers medical service at all times, on a scheduled basis, an out-patient basis, or on an unscheduled basis in a special walk-in clinic. The use of allied health professionals with defined responsibilities and physician support has been well accepted by the patient population. The improved accessibility and education has reduced the unnecessary admissions to the in-patient service. The average number of days spent by a clinic patient in hospitals annually has decreased from 5.6 to 1.7. The latter figure is not significantly different from the one day average of random population. Fifty percent of the hospital admissions prior to initiation of this program were deemed "preventable." The reduction of this rate within one year resulted in a financial savings of over $3 million to that institution and the prevention of a probably large but unmeasured morbidity.

Dr. John Davidson at Emory University, Grady Hospital, in Atlanta, Georgia, has demonstrated similarly that the number of admissions from diabetic acidosis could be decreased from 500 per year to 100 (33). There were also significant financial savings and a remarkable decrease in the number of amputations among patients with diabetes.

The greatest need for experimentation and development in the system for the delivery of care to those with diabetes is in the area of primary medicine. Primary medicine is defined as "first contact medicine" and as White suggested in 1967, it is the care the patient receives when he first approaches the health service system and formally participates in the process of medical care (34, 35; Appendix G).

Primary care also carries the connotation of longitudinal responsibilities by physicians who are concerned with the physical, psychological, and social aspects of patient care. In general, in this country, such care is carried out by family practitioners, pediatricians, internists, and some obstetricians and gynecologists. At the present time, the physician power available to supply this consists of some 352,000 licensed physicians in the United States. Of these, almost 20,000 are inactive and two-thirds of the remaining are in research, academic medicine, public health, administration, or specialty practice which leaves an estimated 100,000 physicians who are actually available to care for most of those in a primary health care setting (36).

Since most patients with diabetes are cared for by primary physicians, efforts in research into improved delivery of care should be directed particularly at that level. Educational programs should be directed toward encouraging diffusion of information on treatment and delivery to those professionals who are already providing direct

services. Communication lines should also be established which permit easy patient referral from primary to secondary to tertiary levels and encourage improved health care at minimal cost. Lack of communication and referral networks now jeopardize the health of many diabetics.

In summary, the following points must be stressed:

- There is no imminent cure for diabetes.
- Treatment of the diabetes is essential.
- Optimal care can decrease the incidence of acute, intermediate, and long-term complications.
- Effective health care demands cooperative participation by informed patients.
- Health professionals must be kept abreast of the most recent advances in treatment and make them available to patients.
- Patients and health professionals must develop and participate in a planned system of care to work effectively and efficiently as a health management team.
- It is imperative that research in the field of treatment be stimulated and supported.

2. Future Directions in Delivery of Health Care

The treatment of diabetes mellitus will be with us for decades to come. It is imperative that a sufficient quantity of quality health care be made available in an appropriately planned system and at a reasonable cost to all those with diabetes.

a. Quantity of Service

An assessment of health professionals competent to treat those with diabetes should be made. All professional schools must be encouraged to review their curricula in order to provide appropriate knowledge of diabetes and its treatment. Identified gaps in the manpower necessary to provide comprehensive care may call for the development of new positions or expanded roles of existing professions.

The greatest need for increasing amounts of competent services is at the primary level of health care delivery. This should

be a prime responsibility of the Regional Diabetic Centers. Identified resources at the secondary and tertiary levels will also improve the efficiency of treatment and prevent unnecessary duplications.

The greatest impact on the quantity of service available will result from the training and inclusion of patients into the health care team. The initial step must be concerned with teaching the patient and those responsible for his/her care about the disease and its treatment. Patient teaching must be accepted in principle and concept by health professionals. Ways must be discovered to convince professionals that education can and must become part of every patient encounter.

Consumer groups must also be cognizant of the importance of patient education. They must demand it as part of the care rendered and be willing to pay for the services provided. Techniques and materials will have to be developed and professionals taught how and where to use them. Third party payers must also recognize the importance of education and demonstrate a willingness to pay for this essential service.

Research into the development and establishment of systems of care will also influence the quantity of health workers needed and prevent duplication of efforts and underutilization of employees.

b. Quality of Service

Surveys have indicated that more time and better preparation in the area of diabetes should be provided in the curriculum of most professional schools. Licensure examinations and certification could play an important role in stimulating improved quality of services delivered.

Once trained, recertification or verification of competence by assessment of performance should be required at stated intervals. This is a difficult area at the present time but efforts should be made to ascertain that patients are receiving updated quality care. The question of specialty boards in diabetes should be considered and continuing educational programs should be made available to all professionals. Informative, stimulating, and appropriate formats should be used and should be readily available and accessible. A variety of media should be utilized and reinforced materials supplied. Credit or recognition for educational time should be provided by institutions, licensure, or certification groups.

The implementation of PSRO standards and investigation into quality assessment of ambulatory care by health professional groups and federal agencies should guarantee certain minimal standards. Frequent assessment of these efforts should continually upgrade services rendered.

The development of regional centers should stimulate continuing indepth opportunities for health professionals to receive training and establish standards of excellence.

Since diabetic patients provide the greatest amount of care to themselves, the quality of care can be enhanced most efficiently and effectively by their efforts. Patient education and support must be recognized and provided. Methods of improving patient cooperation or compliance must be identified and implemented. Quality care can only be achieved by knowledgeable health professionals working in cooperation with informed patients. Again, third party payers and federal agencies must be willing to pay for these services. The inclusion of patient education should be encouraged in all health legislation pertaining to health care delivery.

There is an obvious, integral relationship between patient educational efforts and success in achieving adherence to therapeutic regimens. In this sense as well as in others, patient education is treatment.

Research in patient compliance or adherence should include: (1) basic and applied studies of effective communication between health professionals and diabetic patients; (2) basic studies of factors influencing the behavior of persons in dealing with prescribed therapies; (3) empirical studies of patients and settings in which there is high adherence to regimens as well as settings in which adherence is very low; and (4) prospective studies of the applicability of some of the models already referred to including prospective studies of approaches designed to lead changes in patients' performance of prescribed measures.

Emotional impact of diabetes has been repeatedly stressed throughout the hearings. The importance of psycho-social factors in disease control again must be investigated and the results applied. Training professionals to incorporate this into their system of care may be as difficult as persuading patients of its importance. Frequently both groups wait until a major crisis arises before any attention or effort is devoted to this area.

c. Systems Development

Research and support to identify the "what, when, where, how, who, and how much" is as important in health care for people with diabetes as in any well managed business venture. When we are trying to participate in cooperative efforts (with other health professionals and patients) we must do so in a planned manner. Health professionals must encourage objective analysis of their efforts. Evaluation is also an essential ingredient in the system concept and will greatly influence quality and costs.

The development of systems of delivery should stimulate improved quality of care since it promotes identification of tasks and requires accountability. Research into treatment and the delivery of health care services is vital and must be encouraged and supported by federal agencies, foundations, and regional diabetes centers. Cost containment, quality assurance, and systems development must be approached concomitantly. Effective and efficient models of health care delivery systems must be developed and the concepts incorporated into training programs while research in the field is adequately stimulated and supported.

REFERENCES

1. Martin, M. M. Testimony before the National Commission on Diabetes. Bethesda, Maryland. April 23, 1975.

2. Krall, Leo P. Testimony before the National Commission on Diabetes. Philadelphia, Pennsylvania. May 1, 1975.

3. Committee report on professional education. National Commission on Diabetes, 1975.

4. Etzwiler, D. D. Who's teaching the diabetic? Diabetes 16:2, Feb 1967.

5. A special report and recommendations by the Carnegie Commission on higher education in the nation's health, policies for medical and dental education, Oct 1970.

6. President's Commission on Heart Disease, Cancer and Stroke, Dec 1964.

7. Galladay, F. L. Economic implications of patient participation in medical care. Issues paper -- prepared for the Economic Analysis Branch, National Center for Health Services Research and Development. Jan 20, 1973.

8. Graning, Harald. Concept of patient care: Evaluation and significance. Rx: Education for the patient. Proceedings. Department of Health Education. Southern Illinois University. April 1975.

9. Beaser, S. B. Teaching the diabetic patient. Diabetes 5:146-49, 1956.

10. Etzwiler, D. D. What the juvenile diabetic knows about his disease. Pediatrics 29:No. 1, Jan 1962.

11. Etzwiler, D. D. and Sines, L. Juvenile diabetes and its management: family, social and academic implications. JAMA 181:304, 1962.

12. Collier, B. N. and Etzwiler, D. D. Comparative study of diabetes knowledge among juvenile diabetics and their parents. Diabetes 20:No. 1, Jan 1971.

13. Williams, T. F. et al. Dietary errors made at home by patients with diabetes. J Am Diet Asso. 51:19-25, 1967.

14. Williams, T. F. et al. The clinical picture of diabetic control, studied in four settings. Am J of Public Health 57:441, 1967.

15. Watkins, J. D. et al. Observation of medication errors made by diabetic patients in the home. Diabetes 16:882, 1967.

16. Watkins, J. D. et al. A. study of diabetic patients at home. Am J of Public Health 57:452, 1967.

17. Characteristics of persons with diabetes. United States July 1964 -June 1965. U.S. DHEW, PHS Pub #1000:Series 10, No. 40, Oct 1967. Washington, D.C. U.S. GPO.

18. McDonald, G. W. Diabetes supplement of the national health survey. J of Am Diet Assoc. 52:118, 1968.

19. American Hospital Association. Statement on the role and responsibilities of hospitals and other health care institutions in personal and community health education. May 15, 1974.

20. McNerney, W. J. White paper: Patient health education. Blue Cross Association, Chicago, Illinois, Aug 30, 1974.

21. McNerney, W. J. Link in health services. Blue Cross Association. Delivered at the Association of Am Med Coll 85th Annual Meeting. Chicago, Illinois. Nov 13, 1974.

22. Monthly Vital Statistics Report. Table C Provisional Statistics Annual Summary for the U.S. Vol. 23, No. 13, 1974 (Dated May 30, 1975).

23. U.S. Bureau of Census. Mortality Statistics 1900-1904 (Dated 1906).

24. Etzwiler, D. D. et al. Education and management of the patient with diabetes mellitus. Ames Company Division of Miles Laboratories. Elkhart, Indiana, 1973.

25. The university group diabetes program. Diabetes 19:Supplement 2, Nov 2, 1970.

26. Report of the committee for the assessment of biometric aspects of controlled trials of hypoglycemic agents. JAMA 231:No. 6, Feb 1975.

27. Chalmers, T. C. Settling the UGDP controversey. Editorial. JAMA 231:No. 6, Feb 10, 1975.

28. Runyan, J. W. et al. A program for the care of patients with chronic diseases. JAMA 211:No. 3, Jan 1970.

29. Runyan, J. W. Decentralized medical care of chronic disease. Trans Asso Am Physicians I-xxxvi, 1973.

30. Runyan, J. W. The Memphis chronic disease program. JAMA 231: No. 2, Jan 1975.

31. Miller, L. V. and Goldstein, J. More efficient are of diabetic patients in a county hospital setting N Eng J Med 286:1388, Jun 29, 1972.

32. Miller, L. V. et al. Improving the organization of care for the chronically ill. Fogarty International Center Monograph on Diabetes. Bethesda, Maryland.

33. Davidson, J. K. Emory University, Grady Hospital, Atlanta, Georgia (personal communications).

34. A definition of the various levels of medical care. Physician Scarcity Area Scholarship Program Regulations, 42 CFR part 57 subpart W. Source: 39 Fed Reg 28:7-30, Aug 9, 1974.

35. White, K. L. Primary medical care for families. N Eng J Med 277:847, 1967.

36. National High Blood Pressure Education Program, Report to the Hypertension Information and Education Advisory Committee. Task Force IV, Resource and Impact Assessment, 64, Sept 1, 1973.

37. Becker, M. H. et al. A new approach to explaining sick-role behavior in low income populations. Am J Pub Health 64:205-16, 1974.

38. Caplan, S. E. Communication and compliance in an urban pediatric out-patient clinic. Thesis. University of Rochester School of Medicine and Dentistry. Rochester, New York 1975.

39. Davis, M. S. Variations in patients' compliance with doctors' advice: An empirical analysis of patterns of communication. Am J Pub Health 58:274-88, 1968.

40. Marston, M. V. Compliance with medical regimens: A review of the literature. Nursing Research 19:312-22, 1970.

41. Tagliacozzo, D. N. et al. Nursing intervention and patient behavior: An experimental study. Am J Pub Health 64:596-603, 1974.

42. Watkins, J. D. and Moss, F. T. Confusion in the management of diabetes. Am J Nursing 69:521-4, 1969.

43. West, K. M. Am Int Med 79:425-434, 1973.

44. Roberts, D. E. Social roles and disease control. Ph.D. Thesis, Univ. of North Carolina. Chapel Hill, 1966.

C. RESEARCH AND EVALUATION IN TREATMENT AND HEALTH CARE DELIVERY

1. State of the Art

The needs for research into improved modes of therapy and into improved health care delivery have been discussed in the preceding sections of this report. Such research depends on sound evaluative methodology.

Various social and governmental forces are currently operating to exact greater accountability from those institutions that purport to work in the interests of the public, particularly when that work is accomplished with public funds (1-2). However, beyond the external pressures for accountability lie the professional and ethical expectations that individuals responsible for the welfare of others should be able to demonstrate that the confidence and faith they ask for is justified in the efficacy and reliability of the services they provide. The field of diabetes care and management must, as much as any other medical field, be accountable for the safety, efficacy, and efficiency of its methods and procedures. Hence, it is essential that the capacity and the volition required for sound and dependable evaluations be built into the ongoing research and action programs that will be needed to provide optimal care and potential cures for persons with diabetes. Unfortunately it is not clear that the need for evaluation research is widely recognized nor that the will to do such demanding research exists in sufficient strength and extent. It is quite clear that current technical and logistical capabilities now existing are inadequate to the task to be performed.

a. The Evaluation Problem and Task

It cannot be emphasized too strongly that the need to develop strong and sophisticated evaluation capabilities in medical areas is absolute. It is imperative that when recommendations are made concerning cure, treatment, or management of a disease, or concerning the maintenance of health that those recommendations be based firmly on facts scientifically verified and not merely on opinion, however well informed, on accepted practice, or on current fad or fancy. The history of medicine and of health services delivery are both replete with instances of informed opinion, accepted practice, and fad which proved in the course of time to have been useless, wasteful, and in some instances disastrous (3). Management practices for control of diabetes should rest on the bedrock of solid research findings.

There are at present no satisfactory arrangements for the evaluation of diabetes treatment and management plans. Indeed, it would be difficult to devise satisfactory arrangements under current conditions of health care delivery, for reasons that will be discussed later.

For the moment, however, it is constructive to consider the consequences of inadequate evaluations of diabetes treatment and management.

In many respects the evaluation of treatment, by which here is meant specific therapies, is simpler than the evaluation of management of diabetes, although the two problems are closely linked. A treatment is more easily defined than a management plan, and its strength is more easily measured, i.e., in terms of some units of a drug, hours of clinical contact, or whatever. Moreover, it is ordinarily easier to specify the expected outcome of a treatment than of a management plan (4). Even so, our current knowledge of the efficacies of diabetes therapies is abysmally limited. Oral hypoglycemics are but an obvious case in point. Scarcely more is known for sure about dietary regimens, insulin requirements, and other specific therapies. Most of the specific treatment of diabetics is still at the level of informed opinion, e.g., on many aspects of diet, or empirical medicine, e.g., insulin requirements are often set and adjusted periodically on a trial-and-error basis. But it is in the area of management of diabetes and the ancillary and supportive services that are employed that critical knowledge of efficacy is most lacking. Weight control programs, foot care instructions, diet education, patient motivation, and utilization of nurse clinicians are all examples of areas in which very little could be said for sure about even immediate effects, let alone long run effects. And if really penetrating questions concerning critical management features and cost effectiveness were asked, our paucity of empirical, confirmable knowledge would be downright embarrassing.

Unevaluated programs and treatments can be damaging for several reasons (2). First, there are programs and treatments which may actually be positively harmful, no matter how reasonable and attractive they may seem. Second, ineffective or minimally effective treatments may divert scarce resources that might better be used in other ways, even ways appearing mundane. Third, even relatively ineffective treatments that are mistakenly judged effective may eliminate incentives to continue a search for better treatments or programs with the result that discovery of better treatments or programs is long delayed.

The evaluation tasks to be accomplished in the field of diabetes are foreseeable only in a general way, but it is clear that the tasks will be varied, continuing, and, ultimately, critical. Essentially, however, the purposes of evaluation research units are twofold: (1) to permit the strongest and most legitimate statements about the causes of any effects produced, and (2) to make the best possible estimates of the practical importance of those effects. The comparative evaluation of experimental treatments, e.g., of drugs, is a familiar problem in medical research, but it is equally important to be able to evaluate educational programs, training programs, social interventions,

incentive programs, and programs in information dissemination, all of which are often conceived and implemented without definitive knowledge of effectiveness (1-4). It is also necessary to be able to state with reasonable certainty whether a given effect is of sufficient magnitude to be practically important and cost effective. The fact that an educational program can be shown to produce better results than no program may not be useful and may even be misleading unless it is possible to say whether the effect is great enough to be worth producing at some cost in effort, money, and diversion of resources.

b. Impediments to Evaluation

The problems of evaluation are not so much a lack of scientific methodology as inability to apply that methodology. Good experimental methodology with random allocation of treatments, time series analysis, various quasi-experimental designs, and even various correlational methodologies could, if properly applied, provide valuable information bearing on the critical problems involved in treating and managing diabetes (1,2,5). However, our present ability to conduct the investigations needed, of whatever kind, is drastically limited by the conditions under which diabetics are identified, treated, and assisted in the management of their diseases. Even so, there is great need for further work on development of methods for studying the processes and outcomes of diabetic case management. Measurement problems, e.g., of health status, of disease severity, or of outcome, are strong impediments to good research (4). A much needed addition to design structure is a sequential type design which would make it possible to determine with some certainty whether cases are deteriorating or improving at a rate that would justify stopping the experiment. Ways of estimating the separate and interactive effects of components of complex treatment are another highly desirable methodological advance. Some efforts may have to be directed specifically toward the development of critically needed methodologies for evaluation of diabetes programs.

Still, we would reiterate that the major problem lies in our current inability to control the treatment situation well enough to mount good experiments in the first place. The difficulties are several, and they all stem from structural problems in the health care delivery system.

There is first of all the problem in limitation of the availability of the right mix of cases to accomplish the right research. Cases treated by private practitioners are almost never available for research purposes, and even if they were, they would be too scattered to be efficiently used as research subjects. Research that is to be accomplished with realistic budgets requires concentrations of cases. Where cases are concentrated, e.g., in clinics, they tend to be unrepresentative -- mostly poor and old -- and homogeneous by type. Thus, in order

to get samples of diabetics of different ages, in different stages of the disease, being treated by different methods, etc., one must deal with several different, and usually widely separated, treatment sites. What is wanted is a concentration of cases of differing characteristics. We have few if any such situations at present.

A second problem stems from the usual inability of researchers to exert any control over the choice and course of treatments employed with clinical cases. Both in terms of clinical and research considerations it might make sense to have a group of patients being treated by some combination of procedures, but if that combination, and those with which it is to be compared, is not frequent in clinical settings, it cannot be studied. Moreover, once treatment is begun, unless there are clearly important medical or humane reasons for doing so, research demands that it be continued in a specified way. That level of control over treatment is quite difficult to achieve under present conditions. It requires protracted and uncertain negotiations with what often prove to be large numbers of highly independent providers, and there is no guarantee that agreements about modes of treatment will be adhered to.

Thirdly, it can be stated with confidence that valid longitudinal studies -- and such studies are precisely what is called for -- are inordinately difficult if not impossible to accomplish under present conditions. Research cases are so easily lost from the system of care, changes in treatment with changes in provider are so frequent, and the difficulties of adequate closure of cases, e.g., in obtaining a valid determination of cause of death or of condition upon leaving the study, that longitudinal research becomes so dubiously achievable that it is doubtful whether it is worth undertaking to begin with (cf. 6). Again, the answer from a research standpoint is to provide a situation in which researchers have sufficient control to achieve the level of research management capability that is necessary.

Finally, there is the problem of applying and gaining acceptance of research findings in varying clinical settings. For example, many clinicians are undoubtedly satisfied with what they are doing; others are too busy to accept any intrusion into their practices; still others probably do not believe that research would help them very much. And, regrettably, there are those who are resistant to research and the change it might bring, especially research that threatens current modes of treatment by involving paraprofessionals, consumer-oriented techniques, and other than fee-for-service arrangements.

2. Future Directions in Research and Evaluation in Treatment and Health Care Delivery

As research and evaluation in diabetes care and delivery is developed, there will be the inevitable number of troublesome issues. A prime issue will be problems raised by the sometimes restrictive demands of the best scientific methodology. The pressures to compromise, e.g., to use observational and correlational data where experiments are called for, will be strong. If all concerned, researchers and clinicians alike, do not begin with a very strong commitment to use the best and most powerful methods available, compromises which are inevitable will lead to fatally weak research. Weak methodology is very expensive because it leads to uncertain findings and the necessity for additional investigations which could have been obviated.

A second issue that is likely to arise out of needs for systematic evaluation is the acceptability of withholding treatments of one kind or another from some cases and more generally the acceptability of random allocation of those treatments that are employed (7,8). These issues become troublesome because it so often happens that particular treatments become clinically accepted before their efficacy has been scientifically demonstrated or because some treatments seem inherently preferable to others. An example of a clinically entrenched therapy of untested value is, conveniently, provided by oral hypoglycemics. They were already widely accepted and used before any critical tests had been done, and undoubtedly many clinicians regarded the placebo treatment in the UGDP trial as questionable ethically. Even when a decision has been made to do a comparative trial of a treatment against no treatment, a placebo, or an alternative, there may still be resistance to random allocation of treatments to individuals on the grounds of seemingly greater need of some individuals, relative worth of individuals, probable clinical response, etc. (8). It will take a firm initial commitment and a well developed strategy to accomplish high quality evaluation in a clinical situation as fraught with clinical intuition and personal emotion as diabetes management. It might be noted here that some of the physicians who participated in the original planning of the current clinical trial of laser treatment in retinopathy have since refused to allow their patients to be subjects because they have become convinced of the efficacy of the treatment. Early evidence suggests that their confidence is not justified. The case for controlled clinical trials is strong.

A third issue concerns the composition of the evaluation team and the nature of its leadership. In a field powerfully organized by status hierarchies, as is medicine, conflicts can easily arise when the work or the ideas of individuals representing not only different statuses but different disciplines is to be evaluated. It is essential

that there be a commitment to evaluation of both individual and cooperative activities and that a team spirit prevail. There are particularly likely to be conflicts between individuals with a predominantly clinical orientation and those whose orientation is more generally toward research (2). It must be recognized that good evaluation depends upon cooperative efforts between those persons responsible for running a program and those responsible for evaluating it. Such cooperation is more easily built into an organizational framework than elicited after working procedures are well established. Thus, we would argue strongly for planning for evaluation activities from the very beginning of any enterprise (4,5).

a. A Plea for Strong Treatments

In order to achieve correct and meaningful evaluations of any types of interventions, it is necessary that the interventions be implemented in a satisfactory way. Probably as many interventions are judged ineffective because of poor implementation as for genuinely weak effects. Put another way, if we wish to be able to make statements about the potential effectiveness of a treatment, then the treatment should be tested at a strong or optimal level. An illustrative case is the UGDP study which has been criticized for using constant dosage levels which may not have been optimal for more than a few of the subjects receiving either oral hypoglycemics or insulin (6). One should not try to make a critical evaluation of the effectiveness of paraprofessionals unless those paraprofessionals have received very good training. A new type of health service, e.g., home visits for patient education, should not be evaluated unless the program is strong enough that one would expect that it should have effects if it is ever going to. An objection may be raised about testing of treatments or interventions at levels scarcely likely to be achieved under field conditions. There are two distinct evaluation questions involved. A first question is whether an intervention can possibly be expected to have effects. That is the critical first question, and it should be answered satisfactorily before proceeding to the second, perhaps realistic, question whether an intervention is likely to work under conditions of actual implementation. The first question has prior importance since it provides a basis on which to make the decision to abandon an intervention or to try to improve its implementation in the field.

b. Evaluation of Process and Outcome

Evaluation of diabetes treatment and management programs will require study of both the processes and outcomes of care (4,5). It is by now well established that the evaluation of the processes by which health services are carried out is not sufficient to validate the quality of care being given. Given our present state of knowledge, it is perfectly possible to be delivering health services in complete

compliance with current recommendations and still be doing little of value for the patient, and worse, still be doing harm. It is absolutely essential that outcome studies be done in order that health services may be improved and be demonstrated in a positive way to be of value. Yet, it will be difficult if not impossible to improve health services if there is not careful documentation and study of the care that is actually being given. Health services cannot be studied as a "black box" with only inputs and outputs being observable. Unless the processes of care are studied, we will not know what was done, how carefully it was done, how much of it was done, and who did it. Ideally, integrated studies should be done in which processes and outcomes are studies in the same matrix, and, if the cost benefit of treatments is to be determined, it is even desirable to study the broader <u>impact</u> of ameliorative efforts, i.e., effects of overall quality of life, family stability and economic status, and the like.

Studies of health services in diabetes treatment and management will be insufficient unless the contributions of both providers and patients are studied. Patient behaviors are critical to both adequate processes and outcomes in diabetes management, perhaps more than with most other diseases. The diabetic patient has many responsibilities, and some of the behavior patterns that are required are quite complex. The best dietary prescriptions are worthless if the patient cannot understand them or will not follow them. Neither understanding nor acceptance can be assumed. The health care provider team and the patient must form a therapeutic alliance if ultimate outcomes are to be successful. It is important that we understand the terms on which that alliance can be achieved and maintained.

REFERENCES

1. Rivlin, A. Systematic thinking for social action. Washington, D.C. The Brookings Institution, 1971.

2. Campbell, D. T. Reforms as experiment. Am Psychol 24:409-429, 1969.

3. Riecken, H. W. and Boruch, R. F. Social experimentation: A method for planning and evaluating social intervention. New York, Academic Press, 1974.

4. Weiss, C. H. Evaluation Research: Methods of assessing program effectiveness. New York, Prentis-Hall, 1972.

5. Feinstein, A. R. Clinical Biostatistics - VII. An analytic appraisal of the university group diabetes program (UGDP) study. Clin Pharmacol Ther, 1971, 12(2), Part 1, 167-193.

6. Beecher, H. K. Research of the individual. Little Brown & Co., Inc., Boston 1970.

7. Katz, J. Experimentation with human beings. New York, Russell Sage Foundation, 1972.

III. RECOMMENDATIONS

A. GOALS

The overall goal for future directions in the treatment of diabetes mellitus is to achieve, through research, development and training, the necessary capabilities and effectiveness of modes of therapy and health care delivery systems "to permit those with diabetes to live effective and productive lives while minimizing or eliminating complications frequently associated with diabetes."

Many specific needs and recommendations for achieving this goal are included in the section on "Future Directions" earlier in this report, and are recapitulated in brief in the project summaries at the end.

However, a number of specific recommendations regarding Delivery of Health Care and Research and Evaluation in Treatment and Health Care Delivery warrant highlighting here and are, therefore, listed below.

Additional recommendations, especially regarding work that is needed to develop or improve modes of therapy are highlighted in detail in the Future Directions portion of the Modes of Therapy section that appeared earlier.

SUMMARY OF DELIVERY OF HEALTH CARE RECOMMENDATIONS

1. Quantity of Services

   a. Assessment of qualified manpower. The National Center for Health Statistics, American Diabetes Association, the American Association of Diabetes Educators, and all health professional societies, colleges, associations and academies be requested to identify within their organization, those members who are active and skilled in the treatment of diabetes in adults and children. The resulting information should be made available to a continuing National Council on Diabetes (described in Section III of this report) to use and distribute in an appropriate manner.

   b. All health professional education and training programs should be urged to include appropriate, identifiable educational experiences in diabetes in their respective programs. This should be encouraged by the National Council on Diabetes through the appropriate professional groups.

c. The Health Services Agencies established under the National Health Planning and Resource Development Act of 1974 should be encouraged to identify and coordinate diabetes referral and communication networks within their respective areas of jurisdiction. This should be a function of the continuing National Council on Diabetes.

d. Regional Diabetes Centers should stimulate, develop, and demonstrate means of increasing the quantity of health care available at primary, secondary, and tertiary levels and its appropriate utilization.

e. The public, in general, must become increasingly aware of the nature of diabetes and its treatment. Programs in awareness should be developed and provided by the Centers, State Health Departments, voluntary health agencies, the Center for Disease Control, and other groups which must be stimulated by the continuing National Council on Diabetes.

f. Patient education and involvement is imperative if we are to effectively increase available manpower. Payment for patient education by 3rd party payers (private and federal) is imperative. Voluntary health agencies, The National Council on Diabetes and other federal and consumer groups should lead this fight.

g. Means of encouraging patient compliance must be identified and studied. The National Center for Health Service Research, Medicare, 3rd party payers, Regional Centers, and other federal and private agencies and foundations must be approached for understanding and support. The inclusion of competent and cooperative patients into the health care system promises an impressive impact on a manpower needs.

2. Quality of Service

a. All health licensure agencies and professional groups should be encouraged to include specific appropriate questions on diabetes in their testing instruments and examination programs. The National Council on Diabetes should be charged with this responsibility.

b. Groups responsible for the continuing education of health professionals should be encouraged to include programs on diabetes in their ongoing educational programs according to its importance in the particular specialty. Recertification efforts should demonstrate appropriate skills in the field

of diabetes. This should also be a function of the National Council on Diabetes.

c. Specialty boards in diabetes should be considered by at least physician, nursing and dietary groups as well as identifying their roles in the primary, secondary, and tertiary levels of health care.

d. Recommendations for adoption of PSRO standards included in the appendix should be stimulated through cooperative efforts among all health professional groups and federal agencies and should be the responsibility of the National Council.

e. Continuing research in quality assessment must be stimulated and implemented by joint efforts between the private and governmental groups. Health Services Research, voluntary health agencies and foundations should be encouraged by the National Council to support this research.

f. Regional Centers must have as a major priority the responsibility of establishing training models for the delivery of quality health care. This assurance must be included in recommended legislation to the Congress.

g. The education and support of informed patients must be demonstrated and taught by Regional Diabetes Centers in cooperation with other federal and private groups and this too must appear in recommended legislation.

h. Provider, consumer and third party payers should be made aware of the value of patient education and accept it as an integral part of quality care. Several professional societies and associations have already issued policy statements and others should be encouraged by the National Council on Diabetes. Consumer groups should also be encouraged to request such services.

3. Summary of Evaluation Recommendations

It may be helpful to summarize the recommendations which should be implemented in the development of evaluation programs within the field of diabetes.

a. Evaluation should be an integral part of all diabetes centers and programs, as much for research, training and management aspects as for clinical treatments. By

"integral" is meant, among other things, that evaluation should be planned for at the inception of programs and not grafted on later.

b. A broad array of evaluation methodologies should be open for consideration, but there should be a firm commitment to the strongest possible forms of evaluation. Development of new methodologies when necessary should be an accepted and supported function of evaluation teams.

c. Clinicians and researchers should function together in the planning of programs and their evaluations, with each group having shared commitments to strong programs and strong evaluations.

d. Programs and the settings in which they are implemented should be of sufficient scope to provide an appropriate mix of cases, conditions, and sites to make possible good evaluations.

e. Treatment and management settings should be developed which make possible genuinely longitudinal studies over sufficient periods of time and with sufficient control to permit definitive conclusions.

f. The rationale for experimentation, with random allocation of treatments, should be developed in a persuasive way and be agreed upon by all concerned before controlled clinical evaluations are undertaken.

g. Provision should be made for careful studies of both the processes and outcomes of care.

h. Contributions of both providers and consumers of health services to the successful management of diabetes must be studied.

i. Treatments to be evaluated should be implemented in a "strong form," as defined earlier. This is an especially important requirement for training programs, social interventions, etc.

B. APPROACHES

Based on the intensive inquiries, reviews, and discussions of this Workgroup on Treatment over the past three months, and drawing as well upon the varied backgrounds of our members in experience and expertise

with diabetes, we recommend the following approaches to meeting the needs of people with diabetes mellitus in this country.

1. A National Diabetes Council, Staff, and Study Section

There should be established a permanent National Diabetes Council or Agency supported by a permanent staff, to coordinate on-going federal programs related to diabetes, to identify and initiate new programs that are needed, and to take such other steps as are necessary to implement the recommendations of this Commission.

This Council or Agency should operate directly in the office of the Assistant Secretary for Health for the Department of Health, Education, and Welfare.

In order to accomplish its mission, it would need to articulate and carry out comprehensive programs for diabetes, working through various federal agencies and in cooperation with state and voluntary groups. Among the alternative approaches that might be taken, one possible model is presented as Appendix E, "A National Diabetes Policy and Program."

Related to the development of such a Council or Agency are recommendations that there be created a Diabetes Study Section within the Division of Research Grants, National Institutes of Health. The guidelines for this Study Section should include both basic laboratory and clinical research, including research into modes of therapy, delivery of care, compliance with treatment regimes and evaluation of treatment; the composition of the Study Section should reflect expertise in each of these areas. Priority should be such that clinical research is not relegated to a secondary position.

2. Current Mechanisms for Funding

We support the current mechanisms for funding of biomedical research, namely:

a. Individual project grants

b. Institutional project grants

c. Contracts

d. Diabetes clinical research centers

e. "Core" project programs.

We emphasize, as we did in our earlier definition of treatment, that research into treatment includes:

a. Modes of therapy

b. Delivery of therapy

c. Compliance with therapy

d. Evaluation of therapy.

Research into these areas needs to be broadened, and additional support generated for this purpose.

3. Regional Diabetes Centers

RECOMMENDATIONS

It is recommended that every diabetic patient and every professional who participates in the care of diabetes will ultimately have a real or potential relationship with a Regional Diabetes Center. Each Center should have simultaneous significant programmatic commitments to basic research in the biological aspects of diabetes as well as in health care delivery, should participate actively in delivery of care to selected persons with diabetes (for reasons discussed below), and should have active educational programs for both professionals and patients. These components are specified in the National Diabetes Act and are inseparable in the Center concept of this Act. However, these requirements are not meant to exclude nor discourage support for single or collaborative basic or applied research programs, or individual institutional education or treatment programs, which would presumably find financial support through traditional channels.

a. Functions of Regional Diabetes Centers

The functions which Regional Diabetes Centers should coordinate or provide can be considered in six categories: (1) basic biological research; (2) research and development in health care delivery to persons with diabetes; (3) special patient care activities; (4) community support activities; (5) data collection and standardization; and (6) professional education and training.

Brief descriptions of these functions are presented below in the perspective of the Workgroup on Treatment. Each of these serves one or more of the requirements for Centers as stipulated in Section 435(a) of P.L. 93-354.

1) Basic biological research: This is detailed in other sections of the report. Specific funds for basic biological research made available through the Center would be used to provide essential "core" facilities for collaborative research and "starter" support for projects in a manner similar to present general research support (GRS).

   Major support for individual projects should be sought through national competitive peer review mechanisms.

2) Research and development in health care delivery for persons with diabetes: These efforts by centers should include careful longitudinal, prospective studies of different treatment modalities and their effectiveness, and studies of the most effective wasy of delivering the care presently available, including special inquiry into possible new roles for health professionals. Specific topics for study are included in other sections of this report.

3) Special patient care functions: The usual roles and activities of university medical centers should be a critical and major part of the activities of Regional Centers. These should include:

   a) Involvement in certain ways in primary and secondary care services -- to the extent necessary to provide care for the enrolled population of diabetic patients as well as for clinical and health care delivery research and for training.

   b) The provision of referral or tertiary care for the patients in the region -- the end-point of the referral network. This is necessary for optimal patient care as well as for research purposes, to aggregate enough cases of specialized types for research and development of new modes of therapy.

4) Community support functions: The Regional Diabetes Center should provide the setting for assembly and coordination of a broad array of activities in its "community," i.e., the region which it serves. Those functions will differ from center to center, depending on the available resources, existing programs, geography, demography, and established referral pattern of each region. Overall the Center is seen as the focus for

regional activities concerning diabetes. Some of the community related functions which the Center might serve are:

a) Coordination with programs of existing agencies (e.g., ADA and JDF local chapters, United Fund Agencies, State, County, and local Health Departments, individual institutional diabetic education programs) to assure access to these activities by all interested diabetics and their families, and to reduce duplication and insure adequate breadth within a given region.

b) Participation in provision of a resource center for creation, dissemination, and evaluation of education programs for all sectors of the community -- non-diabetic as well as diabetic; those programs might be presented within the center as well as in various key points within the regional "community."

c) Organization and coordination of public campaigns to increase awareness of the prevalence and significance of diabetes as a health problem, with the goals of: detection and treatment for all of the diabetics of a given region; and, better understanding of the problems of diabetic patients by society in general.

d) The establishment of model care/education teams which can travel to various locations within the region, assist local professionals in establishing or upgrading local programs, provide periodic on-site consultation, test new programs of education, and act as a periodic reminder to professionals and patients alike of the existence of and services available from the Regional Center.

e) Maintain a permanently open "hot line," appropriately staffed, to permit health care professionals and patients to receive consultation or information concerning diabetes and its care at any time.

5) Data collection and standardization functions: The Regional Diabetes Center should serve as the collector of data and records concerning the diabetic persons in its designated region. In addition, each Regional Center would serve as part of a national network for data collection. Some possible functions served by such a network are:

a) To provide a continuing data-base for longitudinal studies of the natural history of the diabetic state.

b) To contribute to a sufficiently large national pool of data so that epidemiologic variables in diabetes could be detected and studied.

c) To provide a record-keeping system which will permit rapid, thorough, and consistent evaluation of the effectiveness of new therapies.

d) To provide a basis for maintaining continuity of records for individuals as they grow older and/or move about the country; with due consideration of patient privacy.

Many of these functions might be tied to existing national (Center for Disease Control) and state (health) department) surveillance programs.

6) Professional education and training functions: The Regional Diabetes Centers should be the focal point of a network of professional training and retraining, and of professional review activities for the area served. Among the functions should be:

a) Continuing education concerning diabetes diagnosis, management, and research for the primary and secondary care providers of the region. For example, this might take the form of in-Center programs as well as support of local practitioners in their communities.

b) Establishment and facilitation of region-wide network of primary, secondary, and tertiary care referral capabilities for patients with diabetes, to insure that each patient can and will receive the appropriate level of care and expertise for individual problems, but also supporting the concept of a continuing relationship of each patient to a single primary care provider.

c) The training of new physician diabetic specialists -- future secondary and tertiary providers -- through residency, fellowship, and postgraduate education programs (to be more fully developed in the report on professional education).

d) Establishment (with full consultation at all levels) of regional standards for care of diabetes, and surveillance of compliance with those standards in accordance with existing legislation and policies concerning professional standards review.

e) Special training concerning diabetes for interested or specially designated community professionals of all levels and descriptions, with the goal of raising the quality of care and follow-up at the local level. This training might include specific courses of study, certification, and recertification of both physicians and non-physician professionals, and could utilize a variety of facilities in the region, such as diabetic camps, community colleges, etc.

f) Exploration of new health careers concerned with diabetes; research into new professional definitions related to the needs of diabetic patients, and creation and evaluation of educational programs to train such new professionals.

b. Additional Comments

The relationship of the proposed Regional Diabetes Centers to existing University Medical Centers requires some explication. While it is likely (and desirable) that Regional Centers be established around or adjacent to university medical complexes, the Diabetes Center should have functions and roles much broader than those historically present in university hospital or clinic programs. The university, however, should be available as a resource (on specific contract for both personnel and facilities) to the educational and service programs of the Center.

It will be necessary for the Center to have clear fiscal and administrative autonomy. Such delineation will ensure for the Center freedom from the inherent constraints of the academic center on one hand, and, on the other hand, avoid further strain on increasingly stressed academic resources. That autonomy will permit the director of the Center to negotiate freely with any university, community, or governmental agency, to provide for the services or obtain the consultation necessary to fulfill the Centers' missions. The Center can then serve to coordinate resources in a variety of sectors, public and private, with greater efficiency and breadth of services and programs. One model of Center organization might be a consortium of agencies in a given region, with a University medical center playing a large, but not exclusive role.

As detailed in an earlier section of this report, each Center should provide for comprehensive and continuous evaluation of the effectiveness and appropriateness of each of its functions.

c. Budget Estimates

While each of the proposed regional center will be distinctive in character, and draw upon different available initial resources, there should be relatively similar administrative and coordinating functions in all of them. The budget estimation on the following pages is a very rough approximation of the costs of those functions, with suggestions for the sort of professionals and staff appropriate to the Center's missions described herein.

Regional Diabetes Centers

Personnel estimates (1)

Function	Title	Level
Director	Director	Professional - M.D.
Staff	Associate Director	Professional (senior administrator)
(1) Tertiary Care Functions	Director of Clinical Training	Professional - M.D.
	Director of Research	Professional - M.D. or Ph.D.
(2) Community Support Functions	Social Services	Professional - M.S.W.
	Diabetes Specialist	Professional - R.N., etc.
	Nutritionist	Professional - R.N.
	Health Education and Evaluation	Professional - A.B. or M.A.
(3) Data Collection Functions	Epidemiologist	Professional - M.D. or Ph.D.
	Sr. Systems Analyst	Professional - Ph.D. or M.A.
	Programmers, Data Analyst (2-3)	Staff
(4) Professional Education and Training Functions	Director of Continuing Education	Professional - M.D. or Educator
	Staff (2-3)	Staff

Some or many of the above may be shared with the University sector as partial positions.

Personnel (II): Budget

Calculated at:

$50,000 per Professional Staff person (M.D.)

35,000 per Professional Staff person (other)

20,000 per support staff person (middle level)

12,000 per clerical/technical person

No.		
4	Professional Staff (M.D. or equivalent)	$200,000
5	Professional Staff (other)	175,000
6	Support Staff	120,000
3	Secretarial/clerical	36,000
	overhead 65%	345,150
	Sub total	$876,150
	Program Support (Functions 2, 3, 4)	250,000
	Sub total	$1,126,000
	*Basic Research and Training Support (Function 1)	800,000
		$1,926,000

≅ $2,000,000/center/year at full operational activity

*this item is an approximation of a reasonable amount of funds to provide "starter" or seed money for projects in and about the Regional Center. It is not intended to provide long-term support nor to supplant research funds obtained through peer-review mechanisms.

4. New and Expanded Roles for Health Professionals and Patients

There are demonstration projects where care and education of patients with diabetes are carried out by various health professionals including clinical nurse specialists, physician's assistants, clinical dietitians, pharmacists, and others. It is desirable to utilize to the fullest extent the skills of these highly trained and experienced health professionals in all aspects of diabetic management, care, and education. Projects should be funded to delineate the truly professional roles of these personnel, and, also, to delineate their present functions which might better be delegated to those with lesser educational background (e.g., clinical dietetic (diabetes) specialist and dietetic technician).

Other relatively untapped resources for helping other diabetic patients are diabetic patients themselves. The further development of sound self-help, diabetic-to-diabetic programs along lines already begun in several places should be encouraged and supported.

It is highly desirable, from a treatment and from an economic point of view, that demonstration projects be funded and evaluated (including considerations of relative cost) for these purposes.

5. Use of Other Resources

The National Commission on Diabetes has the opportunity to make recommendations for the use of all National, State, and area resources to help meet the health care needs of people with diabetes.

A special report identifying resources in various federal agencies and state, regional, and voluntary organizations has been prepared by Mrs. Joyce Kortman.

The Commission should include in its recommendations the ongoing identification by all federal agencies of diabetes-related or potentially diabetes-related programs and resources, with the aim that maximum use be made of existing commitments of funds to further the goals of diabetic research, training, and treatment.

C. PROJECT SUMMARIES

The following project summaries represent suggestions for:

- National Diabetes Council, Staff and Study Section
- Professional Education, Quality Assurance, Health Services Research, Center for Disease Control
- Patient Education, Compliance and Adherence
- Regional Diabetes Centers
- Modes of Therapy.

PROJECT SUMMARY SHEET

PROJECT TITLE: NATIONAL DIABETES COUNCIL

OBJECTIVE: Provide continuing interest and support from the federal government in the areas of diabetes, research, education, and training.

DESCRIPTION OF PROJECT:

Establish National Diabetes Council which would plan, initiate, and coordinate all federal efforts in the area of diabetes and coordinate efforts with other non-federal agencies and groups.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Include as an essential part of the Commission's recommendations that an ongoing National Diabetes Council be established.
2. Recommend that groups outside of the federal government be included in its composition; i.e., consumers, providers, voluntary health agencies, etc.

PRESENT STATUS:

Being considered by most workgroups.

INPUT REQUIRED:

Development of Council's structure, responsibilities, composition, and ascertain its inclusion with highest priority in the Commission's report.

FORM OF RESULTS:

Establishment of an ongoing Council.

PROJECT SUMMARY SHEET

PROJECT TITLE: DIABETES COORDINATING COMMITTEE

OBJECTIVE: Provide continuing interest and support from the federal government in the areas of diabetes, research, education, and training.

DESCRIPTION OF PROJECT:

Expand and establish the concept of a Diabetes Committee as described in PL93-354.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Include as an essential part of the Commission's recommendations that an ongoing Diabetes Coordinating Committee be established.
2. Recommend that groups outside of the federal government be included in its composition, i.e., consumers, providers, and voluntary health agencies.

PRESENT STATUS:

Requested in PL93-354 but poorly defined and limited to federal composition.

INPUT REQUIRED:

Development of committee's structure, responsibilities, composition, and ascertain its inclusion with highest priority in the Commission's report.

FORM OF RESULTS:

Recommendations appear in legislative format and sent to congress.

PROJECT SUMMARY SHEET

PROJECT TITLE: LEGISLATION FOR ESTABLISHMENT OF DIABETES CENTER

OBJECTIVE: Improvement of research, education, and treatment in the field of diabetes.

DESCRIPTION OF PROJECT:

Develop (immediately) appropriate legislation for the establishment of 10 to 15 diabetes centers under the National Diabetes Act of 1974, to be brought before Congress in early 1976.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Agreement of Commission on scope, nature, composition, goals, and objectives, funding, evolution, etc. of centers.
2. Writing a legislative bill.
3. Submit to Congress in December 1975.

PRESENT STATUS:

Beginning to develop concept in Commission.

INPUT REQUIRED:

Joint action of all Commission committees and workgroup to develop concept.

FORM OF RESULTS:

Legislative bill.

PROJECT SUMMARY SHEET

PROJECT TITLE: ESTABLISHMENT OF REFERRAL NETWORK FOR TREATMENT OF DIABETES

OBJECTIVE: Improvement of treatment of those with diabetes by identifying and developing resource and referral patterns.

APPROACH TITLE:

Identification of regional resources in treatment of diabetes.

DESCRIPTION OF PROJECT:

Identification of regional facilities and personnel organization into an appropriate referral network.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Include as responsibility of Centers.
2. Encourage development by National Diabetes Council.

PRESENT STATUS:

No networks formally exist.

INPUT REQUIRED:

Include in recommendations under treatment.

FORM OF RESULTS:

Identification of resources and incorporation into effective referral network.

PROJECT SUMMARY SHEET

PROJECT TITLE: A PROGRAM FOR COMPREHENSIVE REGIONAL CENTERS FOR DIABETES

OBJECTIVE: Establishment of comprehensive regional diabetes center to coordinate research, teaching, and care in a delineated area.

DESCRIPTION OF PROJECT:

Establishment of a consortium and administrative apparatus for coordination of existing resources and introduction of new projects to meet center goals (see Center description).

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Acceptance of principle by national (federal?) agency.
2. Appropriation of funds.
3. Selection of critical personnel with appropriate perspective.
4. Development of broadest possible spectrum of sectors and agencies, governmental, educational, and voluntary.

PRESENT STATUS:

No existing structures.

PROJECT SUMMARY SHEET

PROJECT TITLE: PROFESSIONAL EDUCATION -- DIABETES MELLITUS

OBJECTIVE: Improvement of management of diabetes through education, cooperation, and communications among health professionals.

APPROACH TITLE:

Education and training of health professionals in the treatment of diabetes mellitus.

DESCRIPTION OF PROJECT:

Train health professionals in the treatment, delivery, and evaluation of health care services for those with diabetes.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Include in legislative recommendations to Congress.
2. Establishment of ongoing diabetes courses.
3. Include in Center's concepts.
4. Include in other recommendations for support and funding.

PRESENT STATUS:

Recognized but needs development and support.

INPUT REQUIRED:

Recommendations from Education Committee.

FORM OF RESULTS:

Include in legislative recommendations and Center's concept.

PROJECT SUMMARY SHEET

PROJECT TITLE: PROFESSIONAL EDUCATION -- DIABETES MELLITUS

OBJECTIVE: Improvement of management of diabetes through education, cooperation, and communications among health professionals.

APPROACH TITLE:

Education and training of health professionals in the treatment of diabetes mellitus.

DESCRIPTION OF PROJECT:

Train health professionals in the treatment, delivery, and evaluation of health care services for those with diabetes.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Include in legislative recommendations to Congress.
2. Include in Center's concepts.
3. Include in other recommendations for support and funding.
4. Stimulate professional training programs and certification groups to include in appraisal.

PRESENT STATUS:

Concept recognized, but needs development and support.

INPUT REQUIRED:

Recommendations from Education Committee.

FORM OF RESULTS:

Include in legislative recommendations and Center's concept.

PROJECT SUMMARY SHEET

PROJECT TITLE: CERTIFICATION OF HEALTH PROFESSIONS -- DIABETES MELLITUS

OBJECTIVE: Identification and certification of health professionals qualified in the treatment of diabetes.

APPROACH TITLE:

Development of criterion for certification.

DESCRIPTION OF PROJECT:

Provide training, continuing education, and performance criterion for accreditation of health professionals.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Assign as National Diabetes Council responsibility.
2. Require centers to provide appropriate training.
3. Encourage certification for "specialty" reimbursement by federal government.

PRESENT STATUS:

Being considered by some professional organizations.

INPUT REQUIRED:

Recommend as responsibility for Council and Centers.

FORM OF RESULTS:

Included in charges to Council and Centers.

PROJECT SUMMARY SHEET

PROJECT TITLE: PSRO

OBJECTIVE: Improve hospital management of patients with diabetes.

APPROACH TITLE:

Quality review mechanism.

DESCRIPTION OF PROJECT:

Stimulation of development, distribution, and use of PSRO recommendations.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Inclusion in Commission.
2. Charge responsibility to National Diabetes Council.
3. Include as responsibility of Centers.
4. Require inclusion in legislation for federal reimbursement.

PRESENT STATUS:

Partially developed standards with a variety of use and acceptance.

INPUT REQUIRED:

Include in Centers and Council description and responsibilities.

FORM OF RESULTS:

Included in Commission's recommendations.

PROJECT SUMMARY SHEET

PROJECT TITLE: PEER REVIEW STANDARDS -- AMBULATORY CARE OF THOSE WITH DIABETES

OBJECTIVE: Improve health care delivery -- ambulatory review.

APPROACH TITLE:

Treatment review mechanisms.

DESCRIPTION OF PROJECT:

Establish criteria for ambulatory peer review.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Include recommendation in legislation as ongoing responsibility of National Diabetes Council.
2. Encourage Centers to assist in development, demonstration, and training of these recommendations.
3. Require review and adherence for eventual federal reimbursement for Medicare and Medicaid.

PRESENT STATUS:

Pediatric standards developed and included in report. Guidelines for care in primary, secondary, and tertiary levels included.

INPUT REQUIRED:

Indicate as responsibilities of National Diabetes Council and Centers as well as cooperative effort with HSR.

FORM OF RESULTS:

Establishment of standards for insurance of quality care.

PROJECT SUMMARY SHEET

PROJECT TITLE: INVESTIGATION AND DEVELOPMENT OF EVALUATION OF HEALTH CARE DELIVERY

OBJECTIVE: Improved delivery of care to those with diabetes.

APPROACH TITLE:

Systemization of delivery services.

DESCRIPTION OF PROJECT:

Establish concept in Center's requirement and in the development of the Coordinating Committee.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Conference on Systems by Commission in September.
2. Inclusion of concepts in report and recommendations.
3. Inclusion of concept and program in Centers.

PRESENT STATUS:

Not well studied or understood. Needs investigation and research.

INPUT REQUIRED:

Inclusion of concept in Commission Report by Committee on Treatment.

FORM OF RESULTS:

In legislation passed and Centers funded.

PROJECT SUMMARY SHEET

PROJECT TITLE: CHRONIC DISEASE CONTROL CENTER -- COOPERATIVE EFFORT

OBJECTIVE: Initiate and provide continuing support for research, instigation, and evaluation of improved treatment of diabetes at the primary and secondary levels of delivery.

APPROACH TITLE:

Cooperative efforts with the Chronic Disease Control Center.

DESCRIPTION OF PROJECT:

Dr. James Field is requested to investigate feasibility of Chronic Disease Control Center assisting in improving the delivery of care to those with diabetes by involvement of the National Center for Health Education and Laboratory.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Evaluation of current laboratory quality as it pertains to glucose determinations.
2. Identification of current patient teaching throughout the U.S.

PRESENT STATUS:

Embryonic but possesses great potential for an ongoing effort.

INPUT REQUIRED:

Commission and Chronic Disease Control officials to discuss and plan further how their efforts can complement each other in an ongoing program.

FORM OF RESULTS:

Recommendations to Commission for legislative or alternative actio

CRITERIA FOR MEASURING PROGRESS:

Expected impact of the approach on the objective.

1. Accuracy of laboratory procedure and definition of positive glucose tolerance test.
2. Identification of who and where education is available and who should be teaching professionals.

PROJECT SUMMARY SHEET

PROJECT TITLE: PATIENT EDUCATION

OBJECTIVE: Improve treatment of diabetes mellitus at all levels of care delivery.

DESCRIPTION OF PROJECT:

Include in Commission report written legislation which will require the incorporation of patient education into the health care system.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Commission's understanding and acceptance of concept.
2. Write into legislative recommendations for Centers.
3. Seek federal and other funds to stimulate concept.
4. Include in PSRO and ambulatory care assessment.
5. Require for reimbursement from federal programs.

PRESENT STATUS:

Being incorporated into other workgroup recommendations.

INPUT REQUIRED:

Inclusion in Center's concepts.

Establishment as part of the responsibility of the National Diabetes Council.

FORM OF RESULTS:

Establish centers that teach and evaluate efforts.

Improvement of entire health care system through education and involvement of consumers.

PROJECT SUMMARY SHEET

PROJECT TITLE: PSYCHO-SOCIAL RESEARCH AND TRAINING

OBJECTIVE: Improve physical and emotional status of those with diabetes.

APPROACH TITLE:

Research and implementation into psycho-social areas of health care.

DESCRIPTION OF PROJECT:

Includes recognition and support in legislation and ongoing projects.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Encourage incorporation into research and training.
2. Include in recommendations as responsibility of National Diabetes Council.
3. Include in recommendations as responsibility of Centers.

PRESENT STATUS:

High recognition and awareness.

INPUT REQUIRED:

Acceptance by Commission.

FORM OF RESULTS:

Included in recommendations.

PROJECT SUMMARY SHEET

PROJECT TITLE: REIMBURSEMENT FOR PATIENT EDUCATION

OBJECTIVE: Increase patient knowledge of disease and treatment.

DESCRIPTION OF PROJECT:

Include in recommendations that patient education be recognized and reimbursed as an essential part of quality care.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Include in legislation.
2. Include as responsibility of National Diabetes Council.
3. Include as part of Centers.
4. Encourage through Medicare and Medicaid.
5. Include in review process.

PRESENT STATUS:

Supported in concept by Commission.

INPUT REQUIRED:

Include in recommendations.

PROJECT SUMMARY SHEET

PROJECT TITLE: PATIENT EDUCATION

OBJECTIVE: Improve treatment of diabetes mellitus at all levels of care delivery.

DESCRIPTION OF PROJECT:

Include in Commission report written legislation which will provide means of stimulating teaching and evaluating the incorporation of patient education into the health care system.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Commission's understanding and acceptance of concept.
2. Write into legislative recommendations for Centers.
3. Seek federal and other funds to stimulate concept.
4. Include in PSRO and ambulatory care assessment.

PRESENT STATUS:

Verbal support only.

INPUT REQUIRED:

Inclusion in Centers concepts.

Establishment of Diabetes Coordinating Committee with concerned individuals (consumers and deliverers of care).

FORM OF RESULTS:

Establish centers that teach and evaluate efforts.

Improvement of entire health care system through education and involvement of consumers.

PROJECT SUMMARY SHEET

PROJECT TITLE: PROSPECTIVE STUDIES OF MODELS FOR ACHIEVING BETTER ADHERENCE TO DIABETIC REGIMENS

OBJECTIVE: To learn how to achieve improved adherence to therapeutic regimens for people with diabetes.

DESCRIPTION OF PROJECT:

Based on conceptual models which attempt to explain and offer ways to deal with problems in patient compliance, such as the "health belief model" and new models identified in other research, the aim in this project would be to carry out prospective experimental studies of the effectiveness of approaches based on such models.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Identification of models worth testing.
2. Experimental design for testing the effectiveness of new approaches based on the above concepts, with comparable groups of diabetic patients.
3. Evaluation of results.

PRESENT STATUS:

Virtually no prospective studies of efforts to change compliance have been reported. Retrospective and cross-sectional studies have not really answered the questions of what may be effective.

INPUT REQUIRED:

Carefully designed experimental clinical research.

FORM OF RESULTS:

Publications of research results.

CRITERIA FOR MEASURING PROGRESS:

1. Expected impact of the approach on the objective.

   This is the only way to determine with confidence what possible approaches to improving patient adherence are actually effective.

PROJECT SUMMARY SHEET

PROJECT TITLE: EMPIRICAL STUDIES OF HIGH/LOW ADHERENCE TO DIABETIC REGIMENS

OBJECTIVE: To learn how to achieve improved adherence to therapeutic regimens for people with diabetes.

DESCRIPTION OF PROJECT:

Descriptive studies of patients and settings in which there is high adherence to prescribed diabetic regimens and also patients and settings in which there is low adherence, aimed at identifying characteristics which favor better adherence and conversely which are obstacles to adherence.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Identification of patients and settings in which there is high adherence, and those with low adherence.
2. Collection of descriptive, cross-sectional, and retrospective information.
3. Analysis and evaluation of results.

PRESENT STATUS:

Very limited information is available in previous studies; see references in the State of the Art section.

INPUT REQUIRED:

Descriptive research in various settings and with various patients.

FORM OF RESULTS:

Publications of research results.

CRITERIA FOR MEASURING PROGRESS:

1. Expected impact of the approach on the objective.

   Should lead to the development of prospective experimental studies to test possible ways to achieve better adherence.

PROJECT SUMMARY SHEET

PROJECT TITLE: BASIC STUDIES OF FACTORS INFLUENCING THE BEHAVIOR OF PERSONS IN DEALING WITH PRESCRIBED THERAPIES

OBJECTIVE: To learn how to achieve improved adherence to therapeutic regimens for people with diabetes.

DESCRIPTION OF PROJECT:

Research into the psychological and sociological factors which characterize the difficulties people have in adhering to prescribed treatment, and the identification of possible ways to overcome these obstacles.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Basic descriptive analysis and development of concepts.

PRESENT STATUS:

There is very limited basic knowledge about possible explanations for poor compliance to therapeutic regimens. See State of the Art section of the report for references. A few conceptual models have been developed.

INPUT REQUIRED:

Basic psychological and social psychological research of an analytical and concept-developing nature.

FORM OF RESULTS:

Publications of results.

CRITERIA FOR MEASURING PROGRESS:

1. Expected impact of the approach on the objective.

   A major and necessary foundation for proceeding to developmental studies of the applicability of the concepts developed in these basic studies.

PROJECT SUMMARIES: REGIONAL CENTERS

SPECIFIC TITLES	OBJECTIVE	DESCRIPTION OF PROJECT
REGIONAL CENTERS: ROLE IN NATIONAL DATA COLLECTION	To provide regional sources for large national pool of data to permit study of epidemiologic variable in diabetes	To establish standard formats for collection and recording of data and to provide effective computer storage and retrieval systems
REGIONAL CENTERS: STANDARDIZED EVALUATION OF NEW THERAPY	To provide a data collection and retrieval system to permit rapid and valid evaluation of new modes of therapy	
REGIONAL CENTERS: COMPREHENSIVE LONGITUDINAL PATIENT RECORDS	To provide a standardized data collection and recording system to maintain continuity of records for individual diabetic patients as they grow older and/or move about the country	
REGIONAL CENTERS: CONTINUING EDUCATION FOR PROFESSIONALS	To initiate, coordinate, deliver, and evaluate continuing education programs concerning diabetes for primary and secondary providers and other professionals in region	Continuing education concerning diabetes diagnosis, management, and research for the primary and secondary care providers of the region. For example, this might take the form of in-Center programs as well as support of local practitioners in their communities

PROJECT SUMMARIES: REGIONAL CENTERS

SPECIFIC TITLES	OBJECTIVE	DESCRIPTION OF PROJECT
REGIONAL CENTERS: REFERRAL NETWORK ESTABLISHMENT AND FACILITATION	To insure that every diabetic patient in a given region has access to appropriate primary, secondary, and tertiary care and that appropriate referral is, in fact, made	Establishment and facilitation of region-wide network of primary, secondary, and tertiary care referral capabilities for patients with diabetes, to insure that each patient can and will receive the appropriate level of care and expertise for individual problems, but also supporting the concept of a continuing relationship of each patient to a single primary care provider
REGIONAL CENTERS: TRAINING NEW SPECIALISTS	To train new physician diabetes specialists	Residencies, fellowships, refresher courses in diabetes (See Professional Education Report)
REGIONAL CENTERS: PROFESSIONAL STANDARDS AND REVIEW	To lead in establishment of regional standards of care, and maintain continuance surveillance of compliance with standards of care for diabetes in a given region	Establishment (with full consultation at all levels) of regional standards for care of diabetes, and surveillance of compliance with those standards in accordance with existing legislation and policies concerning professional standards review
REGIONAL CENTERS: NEW ROLES FOR HEALTH PROFESSIONALS IN CARE OF DIABETES	To explore new roles for health professionals related to the care of patients with diabetes	Exploration of new health careers concerned with diabetes; research into new professional definitions related to the needs of diabetic patients, and creation and evaluation of educational programs to train such new professionals

PROJECT SUMMARIES: REGIONAL CENTERS

SPECIFIC TITLES	OBJECTIVE	DESCRIPTION OF PROJECT
REGIONAL CENTERS: MODELS OF IDEAL SPECIALTY CARE FOR DIABETES	Highly specialized tertiary care of problems of persons with diabetes -- model care programs	Establishment of the best possible referral and tertiary care programs for region, available as resource to entire region, as a model for ideal care, and as a "laboratory" for exploration of new modalities and organizations of care
REGIONAL CENTERS: RESEARCH AND DEVELOPMENT IN HEALTH CARE DELIVERY FOR CHRONIC DISABILITY	Improved health care for persons with diabetes and other chronic disorders	Multiple research projects (see "Delivery" and other sections) using center capabilities Key events critital to the success of the project: acceptance of importance by policy making sectors of medicine, government, and consumers
REGIONAL CENTERS: COMPREHENSIVE CARE FOR THE DIABETIC PATIENT	To deliver the best possible primary (& secondary) care to the enrolled population of the Center itself	1) Delivery of best possible primary and secondary care 2) Experimentation with new forms of organization for delivery & evaluation of primary and secondary care 3) Models of care for teaching of health professionals

PROJECT SUMMARIES: REGIONAL CENTERS

SPECIFIC TITLES	OBJECTIVE	DESCRIPTION OF PROJECT
REGIONAL CENTERS: COMMUNITY COORDINATION OF PROGRAMS FOR DIABETES	Coordination, effective utilization, and expansion of existing diabetes-related programs in the region	Coordination with programs of existing agencies (e.g., ADA and JDF local chapters, United Fund Agencies, State, County and local Health Departments, individual institutional diabetic education programs) to assure access to these activities by all interested diabetics and their families, and to reduce duplication and insure adequate breadth within a given region
REGIONAL CENTERS: EDUCATIONAL PROGRAMS	To provide a central point for creation, dissemination and evaluation of education programs for the regional "community"	Participation in provision of a resource center for creation, dissemination, and evaluation of education programs for all sectors of the community -- non-diabetic as well as diabetic; those programs might be presented within the center as well as in various key points within the regional "community"
REGIONAL CENTERS: ROLE IN PUBLIC INFORMATION DISSEMINATION	To increase general awareness of prevalence and significance of diabetes as a health problem	Organization and coordination of public campaigns to increase awareness of the prevalence and significance of diabetes as a health problem, with the goals of: detection and treatment for all of the diabetics of a given region; and, better understanding of the problems of diabetic patients by society in general

PROJECT SUMMARIES: REGIONAL CENTERS

SPECIFIC TITLES	OBJECTIVE	DESCRIPTION OF PROJECT
REGIONAL CENTERS: PROFESSIONAL AND EDUCATIONAL OUTREACH PROGRAMS	To establish, train, and evaluate teams of professionals to bring education, consultation, and care to multiple key locations within a region	The establishment of model care/education teams which can travel to various locations within the region, assist local professionals in establishing or upgrading local programs, provide periodic on-site consultation, test new programs of education, and act as a periodic reminder to professionals and patients alike of the existence of and services available from the Regional Center
REGIONAL CENTERS: "HOT LINE"	To provide easily and constantly available telephone consultation for professionals and patients within a region concerning diabetes	Maintain a permanently open "hot line", appropriately staffed, to permit health care professionals and patients to receive consultation or information concerning diabetes and its care at any time
REGIONAL CENTERS: DATA COLLECTION FOR LONG TERM RESEARCH	To collect and organize data concerning diabetes patients in the region or a source for longitudinal studies of diabetes itself	To collect and organize data concerning diabetes patients in the region or a source for longitudinal studies of diabetes itself

PROJECT SUMMARIES: MODES OF THERAPY

TITLE	OBJECTIVE	DESCRIPTION OF PROJECT
TO DEFINE ROLE OF VIRAL INFECTIONS IN ETIOLOGY OF DIABETES MELLITUS	To prevent development of diabetes mellitus	Attempt to understand epidemiological patterns of diabetes and relate this to viral epidemiology
TO DEFINE ROLE OF VIRAL INFECTIONS IN ETIOLOGY OF DIABETES MELLITUS	To prevent development of diabetes mellitus	Attempt to isolate viruses which might be etiologically related to diabetes
TO DEFINE ROLE OF VIRAL INFECTIONS IN ETIOLOGY OF DIABETES MELLITUS	To prevent development of diabetes mellitus	Attempt to develop a vaccine against diabetes due to viral infections
TO UNDERSTAND THE ROLE OF NUTRITION IN PRECIPITATING DIABETES MELLITUS	To prevent development of diabetes mellitus	Determine the effects of various dietary patterns, diet compositions and calorie levels in precipitating diabetes
TO UNDERSTAND THE ROLE OF NUTRITION IN PRECIPITATING DIABETES MELLITUS	To prevent development of diabetes mellitus	Determine the influence of hypothalamic control of eating behavior
TO UNDERSTAND THE ROLE OF NUTRITION IN PRECIPITATING DIABETES MELLITUS	To prevent development of diabetes mellitus	Determine the role of hypothalamic control of glucose regulation

PROJECT SUMMARIES: MODES OF THERAPY

TITLE	OBJECTIVE	DESCRIPTION OF PROJECT
TO RESTORE BETA-CELL FUNCTION TO NORMAL	To cure diabetes mellitus	Development of pharmacologic agents to restore islet cell function
TO RESTORE BETA-CELL FUNCTION TO NORMAL	To cure diabetes mellitus	To find biological means (e.g. viruses) that augment replication of beta-cells
DEVELOP A CLASSIFICATION OF DIABETES MELLITUS, BASED ON VARIOUS SUBTYPES	To develop better modes of therapy for control of diabetes mellitus	Attempt to understand various etiological and pathogenetic mechanisms responsible for diabetes mellitus and understand those factors which contribute to an increased risk of complications
DEFINE WHAT CONSTITUTES "IDEAL" METABOLIC CONTROL	To develop better modes of therapy for control of diabetes mellitus	Define those factors which might be markers of control and relate those factors to longitudinal outcomes of diabetes, particularly in relationship to complications
TO IMPROVE NUTRITIONAL KNOWLEDGE AND PRACTICE OF HEALTH PROFESSIONALS	To develop better modes of therapy for control of diabetes mellitus	Increase and improve clinical nutrition education for health science students and professionals
TO IMPROVE NUTRITIONAL PRACTICE IN RELATIONSHIP TO DIABETES	To develop better modes of therapy for control of diabetes mellitus	Develop simple instructional materials for patients

PROJECT SUMMARIES: MODES OF THERAPY (continued)

TITLE	OBJECTIVE
TO CHARACTERIZE BIOCHEMICAL DEFECTS RESPONSIBLE FOR DIABETES MELLITUS AS BASIS FOR DEVELOPING MORE RATIONAL THERAPY	To develop better modes of therapy for control of diabetes mellitus
TO DEVELOP AND TEST SYNTHETIC INSULIN PEPTIDES	To develop better modes of therapy for control of diabetes mellitus
TO PRODUCE INSULIN IN CULTURE AND TEST ITS USE	To develop better modes of therapy for control of diabetes mellitus
TO DEVELOP AND TEST AGENTS THAT ENHANCE INSULIN SECRETION	To develop better modes of therapy for control of diabetes mellitus
TO DEVELOP AND TEST AGENTS WHICH INTERFERE WITH HEPATIC GLUCOSE PRODUCTION	To develop better modes of therapy for control of diabetes mellitus
TO DEVELOP AND TEST AGENTS WHICH ACTIVATE INSULIN RECEPTORS	To develop better modes of therapy for control of diabetes mellitus
TO DEVELOP AND TEST AGENTS WHICH SIMULATE INSULIN ACTION WITHIN CELLS	To develop better modes of therapy for control of diabetes mellitus
TO DEVELOP AND TEST AGENTS WHICH POTENTIATE INSULIN ACTION	To develop better modes of therapy for control of diabetes mellitus
TO DEVELOP AND TEST AGENTS WHICH INTERFERE WITH THE SECRETION OR ACTION OF INSULIN ANTAGONISTIC HORMONES	To develop better modes of therapy for control of diabetes mellitus

PROJECT SUMMARIES: MODES OF THERAPY (continued)

TITLE	OBJECTIVE
TO DEVELOP AND TEST GLUCOSE SENSORS TO DETECT ELEVATED OR DECREASED BLOOD SUGARS	To develop better modes of therapy for control of diabetes mellitus
TO DEVELOP AND TEST AN AUTOMATED SYSTEM FOR INSULIN DELIVERY ("ARTIFICIAL PANCREAS")	To develop better modes of therapy for control of diabetes mellitus
TO DEVELOP AND TEST ISLET CELL TRANSPLANTATION AS A MEANS OF IMPROVING METABOLIC CONTROL	To develop better modes of therapy for control of diabetes mellitus
TO IMPROVE THE EFFECTIVENESS OF INSULIN THERAPY BY ALTERING INSULIN REGIMEN	To develop better modes of therapy for control of diabetes mellitus
TO BETTER UNDERSTAND THE RELATIONSHIP, INCLUDING QUANTITATIVE RELATIONSHIP, BETWEEN EXERCISE, DIET, & INSULIN REQUIREMENTS	To develop better modes of therapy for control of diabetes mellitus
TO BETTER UNDERSTAND THE INTERACTION OF CALORIE REQUIREMENTS AND NUTRITIONAL MODIFICATION ON TREATMENT OF DIABETES	To develop better modes of therapy for control of diabetes mellitus
DEFINE MECHANISMS FOR DEVELOPMENT OF COMPLICATIONS	To develop better modes of therapy for complications of diabetes mellitus

PROJECT SUMMARIES: MODES OF THERAPY (continued)

TITLE	OBJECTIVE
UNDERSTAND RELATIONSHIP OF METABOLIC CONTROL OF DIABETES TO DEVELOPMENT OF VASCULAR COMPLICATIONS	To develop better modes of therapy for complications of diabetes mellitus
DEVELOP NEW DRUGS WHICH INHIBIT KETOGENESIS	To develop better modes of therapy for treatment of diabetic ketoacidosis
DEVELOP AGENTS WHICH INHIBIT GLUCAGON SECRETION	To develop better modes of therapy for treatment of diabetic ketoacidosis
TO DEVELOP ALTERNATIVES OF THERAPY IN HYPEROSMOLAR COMA	To develop better modes of therapy for hyperosmolar coma
TO DEVELOP THERAPEUTIC ALTERNATIVES FOR LACTATE ACIDOSIS	To develop better modes of therapy for lactate acidosis
TO DEVELOP WAYS OF INHIBITING SORBITOL PATHWAY	To develop metter modes of therapy for cataracts
TO BETTER UNDERSTAND PATHOGENETIC MECHANISMS OF DIABETIC NEUROPATHY, AND DEVELOP AND TEST AGENTS WHICH ALTER THESE	To develop better modes of therapy for diabetic neuropathy
TO DEVELOP WAYS OF INHIBITING SORBITOL PATHYWAY	To develop better modes of therapy for diabetic neuropathy
TO DEVELOP AND TEST AGENTS WHICH IMPROVE SYMPTOMS OF DIABETIC NEUROPATHY	To develop better modes of therapy for diabetic nueropathy

PROJECT SUMMARIES: MODES OF THERAPY (continued)

TITLE	OBJECTIVE
TO DEVELOP AND TEST AGENTS WHICH ALTER THE COURSE AND CORRECT DIABETIC NEUROPATHY	To develop better modes of therapy for diabetic neuropathy
TO BETTER UNDERSTAND PATHOGENESIS OF NEPHROPATHY SO THAT MORE RATIONAL TREATMENT MODALITIES MAY BE DEVELOPED	To develop better modes of therapy for diabetic nephropathy
TO DEVELOP AND TEST DRUGS WHICH IMPROVE SYMPTOMS OF DIABETIC NEPHROPATHY	To develop better modes of therapy for diabetic nephropathy
TO DEVELOP AND TEST AGENTS WHICH ALTER THE COURSE OF, AND IMPROVE DIABETIC NEPHROPATHY	To develop better modes of therapy for diabetic nephropathy
TO DEVELOP AND TEST AGENTS WHICH INHIBIT BASEMENT MEMBRANE SYNTHESIS	To develop better modes of therapy for diabetic nephropathy
TO BETTER UNDERSTAND THE PATHOGENESIS OF DIABETIC RETINOPATHY SO THAT MORE RATIONAL THERAPY MAY BE DEVELOPED	To develop better modes of therapy for diabetic retinopathy
TO DEVELOP AND TEST AGENTS WHICH ALTER PLATELET AGGREGATION	To develop better modes of therapy for diabetic retinopathy
TO DEVELOP AND TEST AGENTS WHICH ALTER RETINAL METABOLISM	To develop better modes of treatment of diabetic retinopathy

PROJECT SUMMARIES: MODES OF THERAPY (continued)

TITLE	OBJECTIVE
TO DEVELOP AND TEST NEW MODALITIES FOR TREATMENT OF DIABETIC RETINOPATHY	To develop better modes of therapy of diabetic retinopathy
TO DEVELOP THERAPEUTIC ALTERNATIVES FOR DIABETIC DERMATITIS	To develop better modes of therapy of skin problems in diabetes
THERAPEUTIC ALTERNATIVES FOR DIABETIC INFECTION	To develop better modes of therapy of infections in diabetes
PSYCHOPHYSIOLOGIC PROBLEMS IN DIABETES	To better understand and manage psychological problems of diabetes
TO DEVELOP AND TEST VARIOUS THERAPUTIC MODALITIES FOR PERIPHERAL VASCULAR DISEASE	To develop better modes of therapy of peripheral vascular disease in diabetes
TO DEVELOP AND TEST THERAPEUTIC AGENTS IN CORONARY ARTERY DISEASE RELATED TO DIABETES	To develop better modes of therapy of coronary artery disease in diabetes
TO DEVELOP EARLY THERAPEUTIC INTERVENTION IN CEREBRAL VASCULAR DISEASE	To develop better modes of therapy of cerebral vascular disease in diabetes
TO DEVELOP AND TEST EFFICACY OF VARIOUS THERAPEUTIC APPROACHES TO THE COMPLICATIONS OF DIABETES	To develop better modes of therapy of complications of diabetes

IV. APPENDICES

APPENDIX A

REPORTS FROM THE WORKSHOP ON CURRENT STATUS AND FUTURE DIRECTIONS OF THERAPY

1. SUMMARY OF THE WORKGROUP

A Workshop on the Current Status and Future Directions of Therapy was held on July 28, 1975, at which the following topics were discussed, led by the following discussion leaders:

CONTROL OF BLOOD SUGAR

1. Use of Insulin -- Juvenile Diabetes -- Two Viewpoints
   a. Rigid Control
      Dr. Guthrie
   b. Moderate Control
      Dr. Malone
2. Use of Insulin -- Adult Onset Diabetes
   Dr. Colwell
3. Use of Oral Hypoglycemics -- Two Viewpoints
   a. UGDP View
      Dr. Prout
   b. Protagonist View
      Dr. Shuman
4. Role of Diet
   Dr. Arky
5. Acute Problems -- Ketoacidosis and Coma
   Dr. Clements

PSYCHOLOGICAL PROBLEMS AND THEIR MANAGEMENT
Dr. Kaye

OCULAR PROBLEMS
Dr. Peyman

RENAL PROBLEMS
Dr. Goetz

VASCULAR PROBLEMS
Dr. Whitehouse

NEW INSULINS; NEWER USES OF INSULINS; LIPOATROPHY
Dr. Galloway

DERMATOLOGIC PROBLEMS
Dr. Tindall

THE DIABETIC FOOT
Dr. Helfand

NEUROPATHIC PROBLEMS
Dr. Spritz

FUTURE MODALITIES -- AN OVERVIEW
Dr. Lebovitz

There was time for discussion for each topic and general statements were also made by the workshop chairmen. The discussants each submitted written statements summarizing their point of view and

edited versions of these, reflecting the thrust of the meeting, are included in this appendix. These statements and the many points of discussion of the meeting furthered the basis for the section of the Committee on Treatment's report specifically with modes of therapy. The latter report does not attempt to include each and every item discussed included in this appendix. In addition, it includes some areas not included in the statements of the discussants, but included in the discussion. It also includes some areas added later by members of the Committee on Treatment and by the special pediatric workgroups which met on September 10 (see Preface). Because of the existence of many excellent treatises on treatment of diabetes mellitus, this report makes no attempt to either be exhaustive or to include details of therapy. Rather, it highlights those modalities felt to be of major importance, and tries to anticipate some of the areas where new therapies appear to be emerging. Because future therapy of diabetes mellitus will be determined by future better understanding of the disease process, its etiology and its pathogenesis; and because such therapies will also be dependent upon the general advancement of scientific knowledge and development of new techniques biologically as well as the engineering of these, it is impossible to predict with any degree of accuracy where diabetes therapy will be five years from now.

A major concern is that there is now no cure for diabetes mellitus. It is possible to attempt to control the level of blood sugar, but it is not clear that controlling blood sugar is equivalent to controlling diabetes mellitus. It is not known what blood sugar really reflects. Even when blood sugar is controlled, there is lack of adequate data on the degree to which blood sugar should be controlled. There are major difficulties with achieving control of blood sugar. Thus, there are innumerable treatment regimens which attempt to achieve blood sugar control. All of these represent only an approximation of what is seen in the individual without diabetes. There is as yet insufficient data to conclude with any degree of certainty that control of blood sugar will prevent complications of diabetes. These complications are of major importance.

There are both acute complications (ketoacidosis, coma, etc.) and more chronic complications. These latter include microvascular and macrovascular disease (ocular, renal, neuropathy, etc.). There is no cure for the chronic complications of diabetes mellitus. There are only palliative therapies which may halt or delay the progression of the vascular disease and other complications.

There have been newer modalities of therapy suggested which may theoretically provide better control of blood sugar. These include such things as the artificial pancreas, beta cell transplantation, and newer drugs. These, however, do not represent cures. They still

leave unanswered the questions of whether or not blood sugar reflects the diabetes control; of the degree to which blood sugar should be controlled; and of whether or not controlled blood sugar will, in fact, prevent the complications. They will not necessarily lead to prevention of such complications. They probably will not lead to reversal of complications in those already afflicted. These new modalities may likely have problems in their own right -- problems of evaluation and development, problems of rejection, problems of failures or breakdowns, and a host of others now unforeseen. Even then, they will need to be subjected to the rigors of long-term evaluation. They may require adjuvants of therapy (e.g., steroids or immunosuppressive medications) which either aggravate diabetes or produce problems of their own such as to negate any benefits that might be achieved by the new modality.

A cure is not in sight. A cure would represent rejuvenation of pancreatic islet cell function. Even if such were feasible, like all therapies, it would probably be effective in only a subgroup of the population with diabetes. A means of prevention is also essential. If a viral mechanism contributing to the etiology of diabetes is proven, then it might be possible to immunize the population at risk against development of diabetes by the viral mechanism. For the majority of patients, proper weight control throughout life may prevent or ameliorate diabetes. Loss of weight to an "ideal" body weight often yields reversal of diabetes mellitus.

A cure is needed. A means of prevention is needed. Better control methods are needed. Also, however, better criteria of control are needed. Even more significantly, practitioners and clinicians involved in delivery of care to people with diabetes need to use modalities of therapy in the best possible ways and in better ways. Such care needs to be delivered to the entire population with diabetes mellitus. The care needs to be evaluated as to whether or not we are achieving our aims and as to whether or not our aims are, in fact, suitable. These topics are discussed elsewhere in the report on the Committee on Treatment.

2. CONTROL OF BLOOD SUGAR

Richard A. Guthrie, Wichita, Kansas; John A. Malone, Tampa, Florida; John A. Colwell, Charleston, South Carolina; Thaddeus E. Prout, Baltimore, Maryland; and Charles R. Shuman, Philadelphia, Pennsylvania, Discussants

(This is an abbreviated statement of the material discussed at great length at the conference by the above discussants and the participants as a whole. Because the written statements provided included many details of management techniques which are discussed at great length in textbooks and elsewhere, and because of the multiple viewpoints discussed by other participants, this summary statement includes just an overview of the various discussions. It is intended to supplement that part of the workgroup's report included in the body of the report and is not intended to be exhaustive. The reader is referred to standard texts and to the voluminous literature on this subject for further details.)

STATE OF THE ART

Management of the patient with diabetes mellitus can be deceptively easy or agonizingly difficult. Whichever it is, is partly dependent upon the inter-relating psycho-social problems of diabetes. It is mostly dependent upon the philosophy of management of the managing physician or the health care team.

Though there are many methods of management and many gradations of levels of control thought, there are really just two major divisions of philosophy in terms of degree of control desired. There are those who believe that the major problems of the person with diabetes, especially the long-term vascular problems, are a concomitant of the diabetes and are in no way influenced by controlled blood sugar; and there are those who believe that the problems are a complication of the diabetes and are therefore influenced by control. There are variations of these philosophies such as those who agree that the short-term problems (ketoacidosis and hypoglycemia) and/or the intermediate problems (susceptibility to infection, growth failure, and psychological problems) are a complication and are related to control but that the long-term problems (vascular disease, especially microvascular disease) are a genetic concomitant of diabetes and are unrelated to control.

The second difference in treatment philosophy concerns itself with the position and role of oral hypoglycemic agents in the treatment

of diabetes. The controversy is based on interpretation of the results of a large research study by a group of 12 universities cooperating as the University Group Diabetes Program (UGDP). The Food and Drug Administration (FDA) has supported the findings of the UGDP, and has required altered labeling of these drugs. These findings were: in patients treated with the oral agents toabutamide and phenformin, used over prolonged periods at a fixed dose, there was a statistical association with a higher death rate from cardiovascular disease than was seen in controlled groups treated with placebo or insulin. The patients treated were those with mild diabetes without symptoms. Controversy has been focused on criteria for selection of patients; fixed dosage regimen used; extrapolation of the findings to drugs not tested; and extrapolation of findings to patients with more severe diabetes with symptoms, particularly older patients. No resolution of the controversy appears forthcoming. In light of this, it would appear that the exact role of these agents cannot be clearly defined. However, it would appear that the dictum that diet and weight control are the cornerstone of management of these patients need be emphasized; that these drugs be used only after due consideration of the controversial points; and only with the foreknowledge and consent of the patient.

Difficulties with current modalities are: (1) Lack of criteria for management of diabetes and of determination of control. (2) Inadequate home methods for measuring blood glucose on a day-by-day basis. (3) Lack of success in weight reduction programs concomitant with therapy. (4) Paucity of control data on the important question of whether or not therapy affects the natural course of diabetic vascular disease. (5) Toxicities and side effects of some of the treatment agents. (6) Inadequate patient instruction on diabetes treatment techniques and inadequate patient understanding of diabetes. Implicit here is a thorough understanding by physicians, nurses, dietitians, and others. This is often not the case. (7) Poor access to the health care delivery system for many patients, particularly those who are indigent.

FUTURE DIRECTIONS

The thrust of future directions should be toward the unresolved problems of diabetes therapy. Renewed efforts are needed to understand the pathogenesis of diabetes and the relationship of blood sugar control to vascular disease. Better means of monitoring diabetes are needed. Better criteria for control of diabetes are needed. Better understanding of the pathogenesis and therapy of obesity is needed. Practical methods need to be developed for patient and professional education. Further research on the automated pancreas, islet cell transplantation, and other methods to potentially deliver

insulin in a physiologic fashion into the hepatic portal system are needed. New treatments need to be developed. New orally administered drugs with minimal toxicity and side effects are urgently needed. A better health care delivery system to the patient with diabetes could improve the existing treatment for all patients.

3. THE ROLE OF DIET IN THE TREATMENT OF DIABETES

Ronald A. Arky, M.D.

STATE OF THE ART

A renewed and increased interest in the role of diet in both the etiology and therapy of diabetes mellitus has been apparent for the last several years. This reemphasis on nutritional methods as important therapeutic modalities in the treatment of diabetes has evolved with the appreciation that the two other major therapeutic agents, namely insulin and the oral hypoglycemics, not only are fraught with a variety of complications but may not be as effective as formerly assumed in the regulation of the metabolic abnormalities of diabetes. With little exception most authorities recognize that some form of dietary therapy should serve as a basic principle in the treatment of the diabetic. We have been relatively negligent in appreciating that diet is the cornerstone of management of diabetes. Any evaluation of the place of diet in the treatment of diabetes mellitus warrants that consideration of questions that are wider in scope than those usually applied to specific therapeutic agents be given. The purpose of this brief summary will be to consider the status of factual knowledge regarding diet therapy in diabetes mellitus; how and by whom is that knowledge and information being disseminated to patients; how effective is diet therapy and in addition how is the effectiveness of diet therapy evaluated.

State of Current Knowledge

Obesity predisposes to non-insulin-dependent diabetes in genetically susceptible persons; obesity aggravates pre-existing diabetes mellitus; obesity imparts a degree of insulin resistance to both normal and diabetic subjects. Weight reduction improves the glucose intolerance frequently noted in obese individuals with a family background for diabetes mellitus; weight reduction diminishes the degree of hyperglycemia in the obese, non-insulin-requiring diabetic; weight reduction induces the disappearance of insulin resistance in obese subjects. The primary objective of diet therapy in the great majority of non-insulin-dependent adult-onset diabetics who are obese is weight reduction and the achievement of a weight that approximates "ideal." Total caloric restriction for such diabetics is the fundamental principle in therapy; the nature of the foods that comprise the diet are of less importance.

Caloric intake should not be restricted below normal levels in the lean, insulin-requiring diabetic. Such diabetics should be provided with smaller meals and between-meal snacks in a fashion to approximate the time-action pattern of administered insulin. The insulin-requiring diabetic must be conscious of the timing, nutritional character of feedings, and the appearance of other factors in his or her health that may necessitate alterations in insulin or diet therapy.

Controversy still persists as to whether there is an ideal diet for all diabetics. Recent trends have diminished the emphasis on the restriction of carbohydrate in both major types of diabetes: insulin demands seem to relate to total fuel supply rather than the amount of dietary carbohydrate. If caloric consumption is maintained at an appropriate level, diets rich in starches and complex carbohydrates are well tolerated by all diabetics. The former trend to restrict carbohydrates necessitated an increase in dietary fat (the typical diabetic diet in the United States consists of 42% of calories as fat versus 15% as fat in the Asian diabetic diet). Growing children and women who are pregnant or lactating require at least 1.5 grams of protein per kilogram of ideal body weight.

Dissemination of Dietary Knowledge to the Diabetic

Many adult diabetics diagnosed in the setting of a routine physical examination or in the course of evaluation for other illnesses often receive no instruction about diet. Others are presented standard materials prepared for the physician or his or her office assistant by a dietetic or diabetic association or more commonly by commercial firms or members of the pharmaceutical industry. Diabetics with little hospital contact rarely are exposed to dietitians or other individuals who have specific training to impart dietary instruction. Diabetics whose disease is uncovered within the confines of a hospital or similar institution may fare a bit better as regards contact with individuals experienced in imparting dietary information; however so frequently the presence of serious illness aside from diabetes prevents the emphasis to both patient and family on diet as a modality of therapy for diabetes. Even within institutional settings the materials used for the instruction of the patient and the family may be of such complexity that the resulting confusion eventuates in a complete neglect of any dietary routine. In addition, too often the dietitian, physician or nurse may have poor understanding of the principles, objectives, and priorities of diet therapy.

Review of educational materials available for the diabetic in many parts of the United States reveals that only in special instances are diet manuals, cookbooks, etc. aimed at the accepted reading level of individuals with diabetes. Little attention has been given to the

diabetic unable to speak or understand English or whose ethnic and national customs are such that adherence to diets composed of the "usual" American foods is impossible. Even intelligent individuals with diabetes find that such dietary strategies as the "food exchange system" are too complex and difficult to adjust to the usual food habits.

Evaluation of Dietary Therapy: Its Effectiveness

Overall, the diet therapy of diabetes has been a complete failure. The several reasons for this failure have been analyzed in an excellent review by Dr. Kelly M. West. Consequently this brief review will not elaborate upon the several factors that account for these failures. On the other hand, a number of investigators have shown that an impressive relationship exists between the effectiveness of dietary therapy and the biochemical control of diabetes and it is recognized that effective dietary therapy is quite feasible. Overall the major cause of failure stems from communication difficulties. As already cited, the diabetic and the family of the diabetic often do not understand the instruction or the principles of the instruction offered by the dietitian, physician or nurse. Of equal importance is the inability on the part of the members of the medical profession to impart to the patient the basic principles of dietary therapy in a form that the majority of patients will perceive the importance and totality of the message. This communication barrier is further aggravated by the lack of teaching manpower in many areas of the country. The patient educator often underestimates the general and specific deficiencies in the patient's understanding.

FUTURE DIRECTIONS

Recognizing that there are wide gaps in fundamental knowledge in the dietary treatment of the diabetic and that there are major defects in imparting the established information to the patient and the family of the diabetic, a number of suggestions to the Commission are offered.

1. A comprehensive effort should be made to establish coordinated teams (i.e., physicians, dietitians, and nutritionists) that would investigate the several major questions regarding diet in the diabetic that remain unanswered. For example, (a) Is there any value in decreasing the total quantity of fat in the diabetic diet? (b) How many diabetics (both insulin-requiring and non-insulin-requiring) have the biochemical aspects of their disease aggravated by increases in carbohydrate? (c) Does weight reduction alter the ultimate course in the mild adult-onset diabetic?

2. Stimulate interest within the medical schools of this country and the curriculum committees of such schools to include and improve upon teaching in clinical nutrition for medical students and also for other personnel who will have direct contact with the diabetic and play a role in the instruction of the diabetic.

3. Establish mechanisms whereby every health delivery institution catering to one hundred or more people provides to the public an individual trained in imparting nutritional education to patients and their families; emphasis should be made that such patient educators should be familiar with the ethnic, sociologic, and cultural background of the individual in the community that is being served.

4. Stimulate interest among the professional associations (American Diabetes Association, American Dietetic Association, etc.) that have a direct involvement in this problem so that said associations prepare materials for instruction that are simplified and comprehendible by all individuals and that are directed to patients with fifth to seventh grade educational background.

5. Stimulate among the medical community the concept that the dietitian-educator is a vital part of the health care team and emphasize to the physician that dietary therapy for the diabetic is not only feasible but effective.

6. Encourage among the professional educators of the diabetic the adoption of systems and methods that will enable the evaluation of the education process and the effectiveness of that process so that modification and new approaches are always possible.

BIBLIOGRAPHY

Wood, F.C. Jr. and Bierman, E.L. New concepts in diabetic diets. Nutrition Today 7: 4-10, 1972.

West, K.M. Present knowledge of nutrition in the prevention and therapy of diabetes mellitus. Nut Rev: July 1975.

West, K.M. Diet therapy of diabetes: an analysis of failure. Ann Int Med 79: 425-434, 1973.

Weinsier, R.L. et al. Diabetes 23: 660-673,1974.

Stone, D.B. and Conner, W.E. The prolonged effects of a low cholesterol, high carbohydrate diet upon the serum lipids in diabetic patients. Diabetes 12: 127-132, 1963.

Etzwiler, D.D. Who's teaching the diabetic? Diabetes 16: 111-117, 1967.

4. THERAPY OF DIABETIC COMAS

Rex Clements, M.D.

STATE OF THE ART AND FUTURE DIRECTIONS

Diabetic comas continue to be seen with regularity at most medical centers, and continue to carry a significant mortality. Current disagreement concerning the appropriate therapy of the diabetic comas suggests that optimal therapies have not yet been established. Well-controlled clinical trials will be required to determine not only the optimal insulin and fluid regimens to be employed, but also to determine those parameters which can be used to assess the effectiveness of therapy.

Although insulin is required for the treatment of diabetic ketoacidosis, neither the best route of administration nor the optimal amounts to be administered have been firmly established. Furthermore, although the effectiveness of insulin treatment can best be assessed by measurement of changes in plasma free fatty acid and betahydroxybuteric acid concentrations, laboratory techniques for the rapid measurement of these compounds are not generally available. The use of glucose monitors and of computer-assisted insulin infusion regimens may prove to be of major importance in the treatment of diabetic ketoacidosis. Similarly, the amount of insulin required for the treatment of hyperosmolar coma has not been established and it is possible that, as in ketoacidosis, continuous low-dose insulin infusion may prove to be effective in the treatment of this condition. Although the effectiveness of insulin therapy in the treatment of lactic acidosis has not been adequately studied, recent reports suggest that it may be of value in the treatment of this almost uniformly fatal disorder.

Controlled trials of the advantages of either isotonic or hypotonic fluid administration as the initial fluid therapy of both ketoacidosis and hyperosmolar coma will be required, as will studies of the influence of varying rates of fluid administration on the mortality and morbidity associated with these conditions. Future therapy will be significantly influenced by the establishment of criteria which the physician can employ to determine the optimum rates and types of fluids which will be required by the individual patient.

In addition, studies should be mounted to assess the amounts of potassium required by the patient with ketoacidosis or hyperosmolar coma, as well as to establish criteria to determine when potassium replacement should be initiated. The importance of replacement of

other trace metals lost during the development of ketoacidosis or hyperosmolar comas has received little attention and this question deserves further consideration. Determination of the effect of depletion of erythrocyte 2,3-diphosphoglyceric acid concentrations upon tissue function in diabetic ketoacidosis is required, as are studies of the effectiveness of phosphate replacement upon the rate of regeneration of erythrocyte 2,3-diphosphoglycerate concentrations. In addition, studies to determine the relationship between diabetic comas associated with dehydration and the development of occlusive arterial disease are urgently required.

The use of inhibitors of the long-chain-fatty-acylcarnitine transferase enzymes of the hepatic mitochondrion ((+) decanoyl and (+) octanoylcarnitine) has been found to promptly inhibit ketogenesis in the experimental animal but has not as yet been applied to the treatment of ketoacidosis in man. These agents may carry the risk of precipitating hypertriglyceridemia in a patient in whom lipolysis is not previously inhibited by medical means.

Since glucagon plays an important role in the pathogenesis of ketoacidosis, the development of therapies which specifically inhibit the secretion of glucagon from the α-cell of the pancreas (e.g., somatostatin) may prove a useful adjunct to the therapy of both ketoacidosis and hyperosmolar coma. Somatostatin itself probably will not be the agent, as it has significant toxicities and is nonspecific.

It is hoped that the information gained from these proposed studies will lead to a significant decrease in the mortality and morbidity associated with diabetic comas.

REFERENCES

1. Alberti, K.G.M.M. et al. 2,3-Diphosphoglycerate and tissue oxygenation in uncontrolled diabetes mellitus. Lancet 2: 391, 1972.

2. Arieff, A.I. and Carrol, H.J. Hyperosmolar non-ketotic coma with hyperglycemia. Medicine 51: 73, 1972.

3. Felig, P. Diabetic ketoacidosis. N Engl J Med 290: 1360, 1974.

4. Foster, D.W. Insulin deficiency and hyperosmolar coma. Adv Intern Med 19: 159, 1973.

5. Hockaday, T.D.R. and Alberti, K.G.M.M. Diabetic coma. Clin Endocrinol Metab 1: 751, 1972.

6. Jensen, H.A. Treatment of lactic acidosis with insulin and glucose. Danish Med Bull 20: 16, 1973.

7. McCurdy, D.K. Hyperosmolar hyperglycemic nonketotic diabetic coma. Med Clin North Am 54: 683, 1970.

8. McGarry, J.D. and Foster, D.W. Regulation of ketogenesis and clinical aspects of the ketotic state. Metabolism 21: 471, 1972.

9. Winegrad, A.I. and Clements, R.S. Jr. Diabetic ketoacidosis. Med Clin North Am 55: 899, 1971.

5. PSYCHOLOGICAL ASPECTS OF MANAGEMENT OF JUVENILE DIABETES

Robert Kaye, M.D.

STATE OF THE ART

There are a number of concepts underlying the management of the child and family with diabetes. These are:

1. Children and families affected by diabetes exhibit the same degree of variation in socio-economic, cultural, and intellectual resources as the population as a whole. There is thus no typical diabetic child or family of a diabetic child.

2. The majority of children and families with diabetes possess adequate emotional resources to cope effectively with the superimposition of diabetes on all of the other stresses with which the family and child have contended prior to the appearance of the illness.

3. The majority of diabetic children exhibit effective maturation and achievement commensurate with their intellectual, psychologic, social, and cultural endowment.

4. The stressful aspects of juvenile diabetes are of such magnitude that they have a strong potential for bringing to the surface significant weaknesses in the personality organization of the patient or his family.

5. Commonly used current methods of medical management of juvenile diabetes are inadequate to achieve normal glucose homeostasis in the majority of juvenile diabetics.

6. The quality of the doctor-patient relationship can be supportive or detrimental to the patient's acceptance of the disease, his development of a positive approach to its management and his emotional maturation.

7. Patients exhibit varying capacities for achieving metabolic control and each patient should be helped to arrive at the optimum of which he is capable. The individual patient should not be made to conform to a preconceived notion of his physician in this regard.

In Table I are listed a number of factors believed to be supportive of the goals of achieving a smooth course of the diabetes

and at the same time fostering the emotional development of the patient and his family.

Table I

I. SUPPORTIVE FACTORS

- A. Hospitalization for initial regulation
- B. Thorough education in basics of management
- C. Reassurance of normal findings at follow-up visits
- D. Confidence in and availability of physician
- E. Social supports
  - 1. Parents of diabetic patients
  - 2. Other diabetic children in community, school, doctor's office or camp
- F. Patient groups
- G. Nature of regimen

Hospitalization of the newly diagnosed diabetic child permits a temporary relinquishment of the responsibility for the child's care to professional personnel at a time when the family is experiencing some degree of shock, grief, anxiety, and a diminution in their capacities to deal effectively with stress. In the average family, the psychic repair process begins in a few days and the bewilderment which accompanied the initial diagnosis can be replaced by an effective educational program which provides the family with a beginning sense of competence in dealing with the new dimension created by the appearance of diabetes in their family. The physician assuming the care of the patient should actively participate in the educational process. He then has the opportunity of clearly spelling out the goals of treatment and through the demonstration of his knowledge of the disease preparing the family to enter the doctor-patient partnership with confidence and security. Follow-up visits have the potential for increasing the emotional well-being as well as reinforcing learning and correcting conceptual and management errors. By confirming normal physical development, they suggest to the family that they have done well so far and may expect to do so in the future. Questions concerning future complications may arise at any time and should be answered factually. An attempt is made to support the family in doing their best to achieve control, and then to hope that they "beat the statistics" as they do when they take a plane or motor trip or ski down a slope.

Social support is available by contacts with other diabetic children and their families who are doing well with the same problem. Effective role models may be observed and the "Why me?" feeling alleviated. These opportunities may occur in the doctor's office, in the community, school or camp. Patient groups are often helpful in achieving better emotional and care adjustment.

Dietary calculation should be regarded as an approximation and modified upward or downward in order to satisfy the caloric needs of the individual patient. Variations in the intake of good quality food from day to day appear reasonable as energy requirements vary with changes in energy expenditure. Intervention in the quantitative aspects of food intake are indicated only if weight gain is excessive or inadequate.

In most patients glycosuria is inevitable and it should not engender emotional upset in child or parent. If the pattern of excessive glycosuria is uniform, it should be dealt with by an appropriate adjustment in the insulin dosage, with the use of supplementary doses of insulin for acetururia of heavy glycosuria. Diabetes should not result in constriction of a child's opportunities for a full and satisfying life as might be occasioned by trips, athletics, going away to school, etc. The treatment plan should involve the gradual assumption of developmentally appropriate self-care. By age 11-12, most children should be able to measure and administer their own insulin injections and by 13-15 take the major responsibility for their own management. To achieve the goal of independent care the teen-age child should be seen alone for part of the visit and by 15-16 the transactions should be almost entirely between him and the physician.

The influence of a family's organizational structure on the quality of diabetic control and the psychologic development of the patient can be fairly well predicted during the early months of treatment.

A tolerant-stable family is likely to do well in both diabetic control and personality development. The perfectionist mother may achieve good diabetic control but is likely to thwart the patient's emotional growth and fail to adequately meet the needs of her husband and other children. The "enmeshed family" is likely to have trouble with recurrent ketoacidosis. These are the families with inadequate boundaries between individuals, with everyone into everybody else's business and in which conflicts are not resolved but allowed to peter out. The hyperlabile patients, reported by Baker, Barcai, Kay, and Haque, came from such families. Good results have been achieved with family psychotherapy directed at modification of the unhealthy family organization.

Table II

FAMILY ORGANIZATION, DIABETIC CONTROL, AND CHILD'S PERSONALITY DEVELOPMENT

	Family Organization	Diabetic Control	Personality Development
A.	Tolerant-Stable	good-fair	good
B.	Perfectionist	good-fair	poor
C.	Enmeshed	poor	poor
D.	Disturbed-Unstable	poor	poor
E.	Overly Casual	poor	variable

The strains imposed upon the family of a diabetic child are of sufficient magnitude as to predictably lead to failure in the management and behavioral spheres in the "disturbed unstable family." The clinician should guide such families into psychotherapy. Some families react to diabetes in an overly casual manner, not securing the quality of control which they might with more attention to urine testing and appropriate adjustment of the insulin dosage. The underlying basis for this reaction is variable but can usually be modified in an effective way.

In Table III are listed some of the parental attitudes and reactions which adversely affect diabetic management.

Table III

PARENTAL ATTITUDES ADVERSELY AFFECTING MANAGEMENT

A. Hostile relationship with child
B. Exaggerated, prolonged anxiety or depression
C. Inability to grasp rudiments of management in spite of adequate intelligence
D. Pseudo-competence
E. Excessive involvement in management details of teen-aged patient
F. Overly casual in management of young patient

When the mother and child have an angry and hostile relationship it is inevitable that the issues of diabetic management will be incorporated in the ongoing conflict. The parent who cannot handle effectively the initial grieving response and continues to be anxious and depressed often generates in the patient feelings of guilt,

unworthiness, and depression which interfere with psychologic development and usually the quality of management. There are mothers who for many reasons are unable to incorporate the physician's instruction into day-to-day management. They fail to increase insulin when ketonuria occurs or persist in treating episodes of vomiting by administering broths rather than carbohydrate containing liquids which would protect against hypoglycemia. Others having so great a need to appear competent shut off attempts of the physician to guide them in better management. The teen-aged patient, involved as he is in developing his own sense of independence, usually reacts negatively in relation to management when the parent is excessively involved in his diabetic routines. The overly casual mother will not assist her child to achieve the quality of control of which he is capable.

In Table IV are listed some of the ways in which sub-optimum parent-child relationships manifest themselves.

Table IV

SIGNS OF PROBLEMS

A. Developmental disorder in child
B. Affecting diabetic control directly

1. Faking urine tests
2. Omission of insulin
3. Recurrent acidosis
4. Deliberate over-dosage of insulin
5. Disregard of diet qualitatively and/or quantitatively

In some, diabetic control is the area in which problems surface and in others the gamut of adjustment reactions of childhood appear; school failure, truancy, anti-social behavior, character disorders, etc. In most instances, both management and personality organization are affected. Some relatively well adjusted children fake the results of urine tests or experiment with omission of insulin. Faking urine tests may be a response to parent or doctor over-reacting to marked glycosuria. Omission of insulin may be a child's way of determining whether or not he really needs insulin or it is another of the arbitrary requirements that adults place on children. Repeated acidosis has been seen in children with an inability to discharge anxiety. In these patients, it is striking that recovery in the hospital is initiated by small quantities of insulin whereas much larger doses in the home environment failed to stop the progression of acidosis. Deliberate over-dosage of insulin occurs in a few patients and is

always indicative of severe psychopathology. Very common is a major disregard of dietary recommendations which is indicative of behavioral disturbance and invariably leads to poor control.

FUTURE DIRECTIONS

What can be done about these unproductive and negative actions and behavior patterns? In Table V are listed some of the necessary resources which can provide preventive or therapeutic services the diabetic child and his family.

Table V

DEALING WITH PROBLEMS OF DEVELOPMENT

A. Physician knowledgeable about child development and age-appropriate variations
B. Availability of psychiatric support from therapist familiar with the range of behavior in juvenile diabetics

   1. Family therapy
   2. Individual therapy
   3. Group therapy

Some of the supportive factors which can foster satisfactory adjustment have already been discussed. It is also important that the physician providing diabetic care should be knowledgeable about child development and its age-conditioned variations. Such knowledge will assist the physician in guiding the family to foster the child's development and in recognizing the meaning of apparent behavioral or management problems. In 5-10% of patients, the complexity or magnitude of behavior problems will require the services of a person trained in child psychiatry or psychology. The therapist will be much more effective if he has had an opportunity to observe a cross-section of diabetic children and their families in the diabetologist's office. Family psychotherapy is most effective in dealing with these situations because of the invariable involvement of the family in the problems of the child.

In Table VI are listed some of the needs present in dealing more effectively with emotional problems as they occur in the diabetic child and family.

Table VI

WHAT IS NEEDED

A. Adequately trained medical and psychiatric personnel
B. Validation of relationship of family organization to outcome of juvenile diabetes
C. Development and validation of screening procedure which can identify the "at risk" family
D. Evaluation of the effectiveness of early intervention when developmental or diabetic problems appear

There is need for more diabetologists who understand the basic information concerning child development. There is a need for more psychotherapists who have been exposed to non-psychiatric-patient diabetics in order to understand the variety of ways in which diabetes affects family organization and child development. We need to carry out research which would evaluate the relationship of family organization to the outcome of juvenile diabetes. We should develop and validate screening procedures which can identify the "at risk" family and evaluate the effectiveness of early psychiatric intervention when emotional problems affecting behavior and diabetic management appear.

Kravitz, A.R. and others. Emotional factors in diabetes mellitus. In: A. Marble, P. White, R.F. Bradley, and L.P. Krall (Eds.): Joslin's Diabetes Mellitus, 11th Ed. Philadelphia, Lea and Febiger, 1971.

Baker, L. et al. Beta adrenergic blockade and juvenile diabetes: Acute studies and long-term therapeutic trial. J Pediatr 75: 19, 1969.

Baker, L. and Barcai, A. Psychosomatic aspects of diabetes mellitus. Monograph, Modern Trends in Psychosomatic Medicine II, Ed. O.W. Hill, Butterworth, London, 1970.

6. OCULAR PROBLEMS OF DIABETES

Gholam Peyman, M.D.

STATE OF THE ART

One of the most important manifestations of diabetes is ocular involvement, causing decreased vision and blindness. This blindness may be a result of damage to the light sensitive area of the eye (the retina), the lens of the eye (cataracts), or due to the development of glaucoma.

Diabetic involvement of the retina is called diabetic retinopathy. It now prevails in almost 50% of the patients with diabetes and is directly related to the duration of diabetes and occurs in 90% of patients who have had diabetes for more than 20 years. Diabetes is a common cause of blindness and accounts for roughly 8-16% of all blindness and this proportion is increasing. Diabetic retinopathy may be divided into two general categories -- "background" retinopathy and "proliferative" retinopathy. Early treatment of diabetic retinopathy revolves around prophylaxis and includes both conscientious attention to blood sugar control, and control of hypertension if present. Early detection of retinopathy allows appropriate intervention. Current treatment modalities include photocoagulation (in which a light cauterizes normal blood vessels), vitrectomy (a new operative procedure which allows removal and replacement of a hemorrhagic vitreous), and pituitary ablation.

Photocoagulation methods include argon laser, xexon arc, and ruby laser. The argon laser appears to offer the most technical advantage, allows for treatment of very small areas in any area of the retina, and has minimal side effects, particularly in terms of retinal destruction. The xenon arc must be applied with particular caution because its wide beam of general high intensity causes retinal destruction and results in significant side effects; its wide beam also precludes its use in the region of the macula and disc and for discrete lesions. The use of the ruby laser was based on the principle that generalized retinal destruction would lead to a decreased retinal demand and hence less proliferated changes; it would appear to be of minimal, if any, benefit.

The major disadvantage of all these treatments is that only symptoms are treated, not the underlying disease process.

Other ocular complications, such as cataract or glaucoma, are treated by removal of the cataractous lens or glaucoma medication or surgery.

FUTURE DIRECTIONS

Because diabetic retinopathy is a combination of the generalized altered metabolism and the local response to this alteration, efforts should be made to understand the abnormal metabolism and the tissue response to it. Once the process is understood, therapy can be derived on a more logical and rational basis. The underlying mechanisms behind the relationship of other processes to diabetic retinopathy need to be understood. For example, moderate optic atrophy, glaucoma, severe nearsightedness, and pituitary insufficiency can modify the course of diabetic retinopathy. Contrariwise other conditions including hypertension, renal disease, pregnancy, and drugs such as corticoid steroids may worsen the course of the diabetic retinopathy.

Current modes of therapy need to be modified, and the course of the disease following implementation of these therapies followed. Refinements in the techniques of photocoagulation and vitrectomy need to be developed. The use of ultrasound to gain insight into the structure of the retina and the eye should be further characterized.

The role of pharmacological agents needs to be determined. Calcium dobesylate and salicylates have undergone clinical trials in Europe and may be useful in preventing and/or partially ameliorating diabetic retinopathy. The role of these drugs and their effects on platelet aggregation and in turn the role of this pathogenesis of retinopathy need to be defined. Other drugs which prevent and/or ameliorate retinopathy may be developed.

7. RENAL DISEASE IN DIABETES

Frederick Goetz, M.D.

STATE OF THE ART

Diabetic nephropathy appears to occur after ten to thirty years of diabetes mellitus -- there being an increasing incidence with duration of diabetes between ten and thirty years and then a plateauing with an incidence of some 40% showing azotemia. The prognosis of diabetic nephropathy seems to be uniformly poor. With conventional medical therapy, the duration of life averages three years once mild azotemia (serum creatinine about 2 mg/dl) is noted, and about six months once marked azotemia (serum creatinine 8 or above) is present. The conventional medical treatment of kidney disease in diabetes does not differ in principle from the treatment of kidney failure in any patient. However, the presence of diabetes, usually requiring insulin, makes the usual measures more difficult to apply. Fluid overload and arterial hypertension respond for a time to diuretics and blood pressure lowering drugs. However, the patients with diabetes may have great difficulty in restricting the intake of fluids when this is necessary. Hypertension, fortunately, is often not severe and its control is important since it may aggravate retinopathy; however, blood pressure adjustment may be difficult due to frequent overresponse with distressing postural hypotension. Probably the most difficult adjustment for the patient with long-term diabetes is the need to increase his intake of carbohydrates as well as fats when dietary protein is restricted to relieve uremic symptoms. The problems are mostly psychological, but they can be intense. Nevertheless, some patients can eventually accept even a very low-protein, high-carbohydrate, high-fat diet, with surprisingly little change in control of diabetes. Such a program can relieve symptoms in a uremic diabetic patient for many months. It is not known whether or not it prolongs life.

With essentially all such patients, the limits of conventional treatment are reached in a few months or one to two years. If life is to be sustained, other measures must be considered: chronic hemodialysis or renal transplantation. When chronic hemodialysis has been used in diabetic nephropathy, the survival rate is the worst of any diagnostic subgroup. From a conventional point of view, chances of rehabilitation are poor. Also, the demands of home dialysis seem especially great for the young man with diabetes, with heavy strain from the family unit; most patients with diabetes are dialysed at a center and not in the home. In the setting of blindness from retinopathy and of neuropathy, "quality of life" cannot be

called normal for patients undergoing dialysis. Yet chronic dialysis is clearly life-sustaining for some patients with diabetes and for some, the life may be worth living. Kidney transplantation for diabetic nephropathy has an overall better survival rate than is seen with chronic dialysis. Survival, however, is not as good as survival for patients transplanted for other types of kidney disease. Chances for surviving for at least two years seem good (65% - 70%); for five years, they are fair (about 50%). The usual problems seen in transplantation, i.e., need for immunosuppressive drugs, rejection, etc., are seen.

A detailed consideration of current treatment was presented in a symposium published under the title "End Stage Diabetic Nephropathy" as supplement #1 to the journal Kidney International (October, 1974).

FUTURE DIRECTIONS

The chief need is in better prevention of the development of renal disease in diabetes, as once the condition is developed it is, at best, very difficult to deal with. Better understanding of the role of diet, and other means of conventional management are needed. Dialysis centers should evaluate the long-term value of dialysis for diabetic nephropathy. Better means of immunosuppressive therapy may prevent rejection and allow transplanted kidneys to survive for a longer duration. Newer types of immunosuppressive therapy may replace steroids, which aggravate the carbohydrate intolerance and the metabolic difficulty in controlling the diabetes. Changes in interpretation of vocational rehabilitation statutes may allow more patients who are transplanted to be truly rehabilitated and return to work without being in jeopardy of losing their medical benefits.

8. THERAPY IN DIABETIC NEUROPATHY

Norton Spritz, M.D.

STATE OF THE ART AND FUTURE DIRECTIONS

Like the other complications of diabetes, effective therapy and prevention for its nerve disease await further understanding of its pathogenesis and, particularly of its relationship to the underlying metabolic defects. The most important issue to be considered relates to the role of insulin deficiency (or ineffectiveness) in the production of the neurological manifestations; and as a corollary the likelihood that correction of insulin deficiency will prevent or ameliorate the abnormality in nerve function.

Occasional reports of diabetic neuropathy occurring as the first manifestation of diabetes (1) and subtle neurological disturbances in unaffected relatives of diabetics (2) have been used as evidence that the neurological dysfunction is unrelated to the metabolism abnormality and that it is not preventable or treatable by correction of the metabolic defect. This point of view is supported further by the ineffectiveness, in most instances, of improved control to ameliorate the symptoms of established neurological disease. On the other hand, in the tremendous majority of patients with diabetes, neurological manifestations (as well as other complications) exhibit an increasing prevalence with increasing duration of the disease. Furthermore, recent studies have generally not found significant evidence of neurological dysfunction in unaffected relatives of diabetics (3).

Perhaps the most important support for the idea that, at least in part, insulin therapy can modify neurological disease in man comes from the recent demonstration that in newly discovered diabetics, institution of therapy is associated with improvement, although incomplete, in nerve function as measured by the velocity of impulse condition (4). Such findings are certainly suggestive, but require further confirmation. Even if confirmed, their relationship to the symptomatic and apparently irreversible nerve disease remains uncertain. At the moment, advice that the most precise control of hyperglycemia will prevent nerve dysfunction is not based on clear-cut evidence.

The relevance of studies in animals with experimental or spontaneous diabetes to the human disease is also an area of controversy in this field. Segmental demyelinization, considered to be the pathological hallmark of the human disease, has been demonstrated in

the rat, the animal that has provided most of the reported data. On the other hand, this lesion has been reported in the spontaneous diabetic Chinese hamster (5), and, in the rabbit with alloxan diabetes, loss of myelin as determined by direct quantification has recently been reported (6).

Studies in experimental animals indicate that the metabolism of components of myelin is affected by insulin (7), providing at least the basis for the possibility that metabolic effects on myelin of insulin deficiency may play a role in nerve dysfunction in human disease. Other studies in experimental diabetes provide two mechanisms by which metabolic alteration correctable with insulin may lead to nerve dysfunction and both provide theoretical mechanisms for preventive or therapeutic intervention by precise control. The first of these relates to the presence of aldol reductase in peripheral nerve and the production, by this enzyme, of polyols in the presence of high plasma glucose levels (8). The accumulation of sorbital in these nerves is established in experimental diabetes although its role in nerve dysfunction is not. Specific inhibitors of aldol reductase are now available and their use experimentally may provide more direct evidence of the importance of this system in peripheral nerve dysfunction in experimental diabetes and might provide in the future a therapeutic opportunity in the human disease.

Similarly, considerable evidence has recently been presented to indicate that myoinosital content of nerve plays an important role in the development of the defect in nerve conduction seen in diabetes (9). In the rat, both the prevention of hyperglycemia with insulin therapy and the maintenance of myoinosital levels by dietary supplementation completely prevent the defect in acutely diabetic rats. These findings may also provide important leads for further investigation of the human disease.

While these considerations are critical to any fundamental approach to therapy or prevention of this disease, they do not, unfortunately, translate at this time into any direct action that can be taken by the physician in the patient's behalf. There are, however, several important possibilities for palliative intervention for some of the manifestations of neurological dysfunction.

The first and most important of these is based on the realization that diabetes increases the vulnerability of peripheral nerves to injury. Pressure injury seems to be more common and diabetics, especially with expressed neuropathy, should avoid positions that lead to pressure injury in nerve. Similarly, alcohol may contribute importantly to the nerve disease in diabetic patients and is contraindicated in patients with neuropathy. In diabetic patients with uremia, peripheral nerve dysfunction probably reflects a combination

of both diseases, and intensive dialysis therapy is warranted to minimize the uremic element.

Several of the syndromes reflecting autonomic neuropathy require specialized management, and their recognition and appropriate therapy may be critical to the survival of the patient. As an example, bladder involvement with atony leads to infection and renal dysfunction. Bladder neck obstruction may play a role in these patients, and complete urological evaluation is critical. Gastrointestinal dysfunction in diabetes is usually not a life-threatening complication. The occurrence of one of the malabsorption syndromes that affect diabetics, however, can produce a subtle, but extremely important problem for the diabetic that may be correctable with appropriate therapy. Motor dysfunction of the small bowel may be associated with bacterial overgrowth with resultant malabsorption that can be corrected with antibiotic therapy.

Neuropathic foot ulcers and Charcot joint are complications of diabetic nerve disease that require early recognition and correct therapy.

Impotence is a serious complication in the male diabetic and its early recognition depends on an effective physician-patient relationship as well as awareness of this problem by the physician. The differential diagnosis among psychological, vascular, and neuropathic causes for the impotence is critical since the first two may be helped by therapy directed at the cause, while the last is amenable to no known approach except for urological prosthetic procedures, the efficacy of which is uncertain.

BIBLIOGRAPHY

1. JAMA 183: 926, 1963. Detailed reference not available.

2. Goto, Yoshio et al. Biochemical and Functional abnormalities in pre-diabetic subjects. Adv Metab Dis Supp 1, 4: 305-313, 1970. Rafael A. Camerini-Davalos and Harold S. Cole Ed. Academic Press, New York and London.

3. Chochinov, R.H. et al. Sensory perception thresholds in patients with juvenile diabetes and their close relatives. N Eng J Med 286: 1233-1237, June 1972.

4. Ward, J.D. et al. Improvement in nerve conduction following treatment in newly diagnosed diabetics. Lancet 1: 428-430, Feb 1971.

5. Diabetologia 10:541, 1974. Detailed references not available.

6. Diabetes, in press, Aug 1974. Detailed reference not available.

7. Spritz, Norton et al. Metabolism of peripheral nerve myelin in experimental diabetes. J Clin Invest 55: 1049-1056, May 1975.

8. Gabbay, K.H. The sorbitol pathway and the complications of diabetes. N Eng J Med 288: 831-836, Apr 1973.

9. Greene, D.A. et al. Effects of insulin and dietary myoinositol on impaired peripheral motor nerve conduction velocity in acute streptozotocin diabetes. J Clin Invest 55: 1326-1336, June 1975.

9. MACRO-VASCULAR PROBLEMS OF DIABETES

Fred Whitehouse, M.D.

STATE OF THE ART

This reviews the macro-vascular problems that principally affect the heart, brain, and legs. Though some investigators have speculated to the contrary, as yet no one has clearly demonstrated that the macroangiopathy of diabetes is different pathologically from that occurring in the non-diabetic. Atherosclerotic occlusive disease is the primary problem. Diabetics are affected precociously and the intimal lesions involve the arteries more diffusely. The incidence is greater in diabetics than non-diabetics. The protection sex affords the female is obliterated by diabetes.

Theories for this excess atherogenicity in the diabetic person include: (1) hyperglycemia; (2) an altered sorbitol pathway within the arterial wall; (3) hypercholesterolemia and hypertriglyceridemia; (4) altered fibrinolysis.

Ischemic heart disease (IHD) occurs more commonly in the diabetic patient by age and sex and is more serious when symptomatic. While increasingly common as the diabetic child matures and ages, angina pectoris, myocardial infarction, and congestive heart failure may be the first sign of diabetes in the older adult. No therapies are available for the diabetic that differ from those available to the non-diabetic. Digitalis, diuretics, salt restriction, vasodilators anticoagulants, beta-adrenergic blockers, and aorto-coronary bypass surgery are available for the diabetic who needs such therapy. No special modes of therapy are more useful for the diabetic though none are contra indicated. While results of aorto-coronary bypass surgery in the long-duration, juvenile-type diabetic who has intractable angina are incomplete, studies are available that suggest that the diabetic can be helped by revascularization surgery. I suspect most of these operated patients with IHD have shorter-duration, adult-type diabetes. Recent evidence indicates that aorto-coronary surgery positively affects the natural history of multi-vessel IHD, yet it remains a form of symptomatic therapy.

Peripheral vascular disease (PVD) is clearly more common in the diabetic and when associated with peripheral neuropathy, susceptibility to infection and local trauma, often results in "the diabetic foot."

Gangrene leading to amputation is primarily a disease of the aged diabetic, though some long-term, juvenile-type diabetics are so afflicted. However, a major leg amputation in a patient under 50 and especially under 40 is uncommon.

Modern therapy for peripheral vascular disease has diminished the frequency of crippling amputations. Reasons for this relate to: (1) improved education of the diabetic regarding foot care; (2) help garnered from knowledgeable podiatrists; (3) early, vigorous use of antibiotics; (4) more conservative surgical debridement; (5) use of the transmetatarsal amputation when possible as a foot-saving maneuver with lesser pedal deformity resulting than following a ray amputation; (6) early consultation with an experienced vascular surgeon to consider an angioplastic procedure whenever possible; and (7) clinical application of time and patience -- born of the use of antibiotics and nurtured by the desire to save a foot.

Antibiotics and angioplasty plus applied learning must be given the greatest credit for minimizing morbidity and loss of a limb. To me the first two have probably advanced technically as far as can be expected barring a quantum leap in technology. The degree of availability of high quality podiatric care needs study and attention, both from the viewpoint of corrective surgical chiropody and preventive maintenance therapy. The application of the below-knee amputation when a major amputation becomes necessary will permit greater success with mobility and rehabilitation. The crippling mid-thigh amputation is properly receding in use. Other medical and surgical therapies for PVD are not definitive, including sympathectomy, anticoagulants, vasodilators, tobacco abstinence, Buerger's exercises, infusions of Swedish dextran and hyperbaric oxygenation. Yet one may advise selected therapies in individual cases when definitive therapy is impossible. Studies on drugs affecting platelet aggregation and on enzyme fibrinolysis are incomplete but should be watched with interest.

No one educates the diabetic as well as he might and no diabetic cares for his feet as well as he should. If this obstacle could be overcome, trauma, the common exciting cause in foot problems, could be lessened. The diabetic in particular danger regarding his feet needs to be more careful (or comply better) with protective measures. Health professionals need to offer more definitive and repetitive advice to these high-risk patients. Experienced podiatrists should be involved earlier. Out-patient or office education and third party coverage for these costs need attention. Diabetics need to take care of their feet more seriously.

Cerebrovascular disease (CVD) is overshadowed by ischemic heart disease and peripheral vascular disease, yet all patients, diabetics

and non-diabetics alike, morbidly fear stroke. Great age, either chronologic or physiologic, increases the chances of cerebral thrombosis or cerebrovascular insufficiency. Early identification of carotid narrowing for local endarterectomy and of vertebrobasilar insufficiency for anticoagulant therapy may diminish the incidence of ischemic cerebral infarction. Other therapies are of dubious value.

Hypertension is yielding to drug therapy, and clinical studies have supported the lowered propensity to apoplectic stroke in patients with controlled hypertension. Physicians and other health professionals need to think about, identify, and manage hypertension in the diabetic. The literature suggests that hypertension exists in about 30 percent of adult diabetics. Certainly it is more common in patients with diabetic nephropathy. Attention must be paid to hypertension when present. Lower morbidity and mortality will be the reward. Certain therapeutic maneuvers of a general nature deserve comment.

1) Diet: Elimination of excess weight and lowering to normal of serum triglycerides and cholesterol plus metabolic control of hyperglycemia may all play a salutary effect in the diabetic. Many favor dietary cholesterol restriction, higher ratios of polyunsaturated to saturated fat in the diet, and lower caloric intake to promote leanness and normal serum lipids. These attitudes are not easily taught, probably should be initiated early, and benefits await confirmation.

2) Cigarettes: An accepted risk factor with acute myocardial infarction. No one can favor their use. Diabetics should not smoke cigarettes and should be so advised.

3) Physical activity: Excessive subjectivity exists here with differing opinions confusing the facts. Certainly physical activity promotes leanness and may have a favorable effect on collateral arterial blood flow to the heart and legs. Blood sugar control is aided by regularly recurring physical activity. Definitive evidence should be obtained in this area to permit sound objective advice vis-a-vis the diabetic and his blood vessels.

4) Anti-hyperlipidemic drugs: Several are available; all are, at best, modest in pharmacologic effect. None have demonstrated definitive aid to a large prospective group of diabetics. Recent reports with the use of clofibrate in the Coronary Heart Study were disappointing. Prospective studies in Lipid Centers may offer help in evaluating ileal bypass surgery for selected patients with hypercholesterolemia.

5) Hypoglycemia: Severe hypoglycemia is best avoided in those patients with any underlying vascular disease and smoother metabolic control often is possible with multiple injections of insulin and frequent small feedings.

FUTURE DIRECTIONS

Vascular surgical therapy may have reached technical limits. This suggests that heavy emphasis need be placed on early eradication of risk factors and attempts at metabolic control of diabetes and hyperlipidemia especially when an unfavorable genetic background prevails. Help for the diabetic regarding his vascular problems is closely linked with an understanding of atherogenesis. Most medical programs are difficult to adhere to over long periods of time. Time, energy, and money should be expended toward solving the riddle of atherosclerosis.

If one looks at long-duration diabetics who are healthy (or healthier than you might predict), one will note a monotonous clinical portrait: a slender, physically active person, compulsive by nature who has used insulin from the beginning of his diabetes; often has taken multiple injections of insulin per day, usually a modest total daily dose; who has an inherent small appetite, manifests a certain rigidity toward carbohydrate intake though not necessarily toward fat, lacks an abject fear of hypoglycemia, and has a good genetic background regarding longevity. Are these people trying to tell us something?

BIBLIOGRAPHY

Bradley, R.F. Cardiovascular disease; Joslin's Diabetes Mellitus: 11th ed. 417-477, 1971.

Pell, A. and D'Alonzo, C. Some aspects of hypertension in diabetes. JAMA 202: 104, 1967.

Freis, E.D., VA study on anti-hypertensive agents. JAMA 202: 1028, 1967 and JAMA 213: 1143, 1970.

Mitchell, J.H. Exercise training in coronary heart disease. Adv Intern Med 20: 249, 1975.

Wheelock, F. and Marble, A. Surgery and Diabetes. Joslin's Diabetes Mellitus: 607-620, 1971.

10. PODIATRIC TREATMENT CONSIDERATIONS FOR PATIENTS WITH DIABETES MELLITUS

Arthur E. Helfand, DPM

STATE OF THE ART

Foot health for patients with diabetes mellitus is vital as pedal complications of the disease provide a high degree of morbidity, disability, impairment, functional inactivity, and can contribute to mortality in a significant number of cases. Foot health, because it is generally not related to mortality in the general population, usually has a low priority in the delivery of health care. In relation to diabetes mellitus however, foot care has been recognized as needed by two selected areas: i.e., the inclusion of total foot care under Medicare for patients who have diabetes mellitus and by the publication, "Feet First". This publication was developed and published by the United States Public Health Service in 1970 and still provides the best patient foot health education available today.

If we are to look at the voids that exist today in the foot care programs for patients with diabetes mellitus and to plan for future care needs, we must examine not only the individual patient and his problems, but relate these problems to the system of delivery, financing, and manpower. At the present time, podiatric representation in the Department of Health, Education, and Welfare -- U.S. Public Health Service, does not exist. Thus, foot health and foot care per se have not appeared to be a priority area in planning for future health care delivery.

In general, existing pedal conditions in the diabetic, are magnified by neurologic changes, such as paresthesias, sensory impairment, motor weakness, reflex loss, and neurotropic arthropathy. Vascular changes are many times evident in the foot. These include angiopathy, absence of pedal pulses, trophic changes, ulceration, gangrene, and pain associated with local tissue anoxia and ischemia. The dermatologic changes which are common include bacterial infection, mycotic infection, ulceration, hyperkeratosis, onychial dystrophies, and hypertrophies. In the young diabetic, many of the above concerns are not present because of youth. However, early foot deformities and improper self foot care can lead to infections, which require early and significant treatment. In the elderly patient, the normal changes of aging, other degenerative diseases and processes, and the years of abuse, magnify pedal deformities, such as hallux valgus and other contractures, which create internal pressures and potential

ulcerative sites. Onychial deformity and hypertrophy in the elderly diabetic provide an early site for infection, ulceration, and necrosis. In many cases, because of the vascular impairment, appropriate therapy cannot be instituted without the potential loss of limb.

FUTURE DIRECTIONS

1. Providing patients, their families, and professionals with an awareness of the signs and symptoms of diabetic foot problems. The awareness must be given to the young as well as the old. Publications such as "Feet First" should be part of every diabetic instructional and educational program, to place emphasis on care needs.

2. Podiatric services must be available and accessible to all segments of the population. This includes the delivery of care in the private as well as the public sector. Hospitals should provide a full podiatric service.

3. Patient histories and physical examinations should include a careful, comprehensive, and complete podiatric or foot examination.

4. Where multiphasic screening is in effect, podiatric examinations can be included as many early indicators of diabetes may be in the foot.

5. Care should be available and provided to patients with foot problems who have diabetes mellitus. Criteria, norms, and standards should be developed to permit quality to be developed and maintained.

6. Long range planning should include the inclusion of podiatric services and programs within the U.S. Department of Health, Education, and Welfare -- Public Health Service, to insure program development in the future, as per Resolutions on Foot Health as Public Policy and program documents from the American Public Health Association.

7. Hospitals and institutions providing inpatient care should provide total podiatric services as per the recommendations of the Joint Commission on Accreditation of Hospitals. Where ambulatory care programs are in progress, similar quality should be maintained.

8. Professional education at all levels and programs in continuing education should be developed to clearly demonstrate the

kind of foot pathology that can exist and demonstrate appropriate methods of care.

9. Efforts should be taken to permit the FDA and the FTC to control commercial foot care products, which are recognized as harmful for the diabetic and patient with impaired circulation.

One area of treatment deserves a significant area of research and study. The condition is the diabetic ulcer. The total mechanics of this morbid state are understood except that new concepts are needed in the area of treatment. One example of such a concept consists of the use of physical medicine as a therapeutic modality to improve the local vascular supply to the foot. Modalities that are now being employed include whirlpool, low voltage therapy, reflex heat, and vasodilatation and appropriate exercises. This method has demonstrated significant clinical improvement and many times eliminated the need for inpatient hospitalization and amputation.

11. THE PURIFIED INSULINS AND THEIR CLINICAL SIGNIFICANCE

John A. Galloway, M.D.

STATE OF THE ART AND FUTURE DIRECTIONS

The chromatographic techniques used to identify proinsulin, the bio-precursor of insulin in the beta cell, have been utilized to purify insulin for the treatment of diabetic patients. Specifically, two levels of purity are identified. One, "single peak" insulin is insulin which on G-50 Sephadex chromatography, a form of molecular sieve, has a "single peak." This method markedly reduces the content of large molecular weight materials, which in rabbits and man are immunogenic, and in man may contribute to the development of insulin lipoatrophy. "SPI"* is 99% insulin and insulin-like materials. The purity of "SPI" can be quantified by examining its proinsulin and glucagon content, the latter being 0.07% w/w and the latter 0.015% w/w in commercial Lilly insulin.

"Single component" insulin in the United States is "SP" insulin which has been further purified by DEAE Cellulose chromatography, and an ion-exchange method. ("SCI" is comparable in purity to the Danish "monocomponent" insulin.) "SCI" is greater than 99% pure insulin. The immunogenicity (e.g., formation of antibodies in the serum) in patients who have never received insulin is least in those persons who are treated with "single component" pork insulin. Regardless of purity all beef insulin preparations are more immunogenic than any of the porcine preparations. However, the immunogenicity of "single component" beef insulin can be reduced by using multiple doses daily of Regular instead of Lente. Very preliminary data suggest that multiple doses of "SCPR" are very close to being non-immunogenic and, therefore, might be suitable for use in a "mechanical pancreas" for the treatment of human diabetes. One of the disadvantages of "SCPI" is that with present technology its manufacture results in only 20-30 percent of the units used as starting material.

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* Abbreviations Used:

"SCI" -- "single component" insulin
"SPI" -- "single peak" insulin
"SCPI" -- "single component" pork insulin
"SPPI" -- "single peak" pork insulin
"SCPR" -- "single component" pork regular insulin

"SPPI" and "SCPI" have been used to treat patients with allergy to insulin. About 75% of patients with local allergy to mixed beef-pork insulin will improve if porcine insulin is used. "SC" is usually less antigenic than "SPI." Fifteen-twenty percent of patients with local allergy to insulin react less to beef than to pork insulin. Systemic allergy to insulin is being seen with increasing frequency and is usually managed by desensitization followed by treatment with "SCPI." Porcine insulin is used because 40-50% of patients with systemic insulin allergy have serum antibody titers to beef insulin clearly in the range compatible with immunologic insulin resistance. "SC" is used because the quality control of this material is such that desensitization to one batch usually confers desensitization to subsequent batches of material.

Eighty-five to 90% of patients with insulin lipoatrophy will demonstrate filling in if commercially available mixed beef-pork "SPI" is injected in the affected areas. About half of the remainder will respond to the use of monospecies pork "SPI" which is also commercially available. The remainder respond to "SCPI" if treatment is continuous.

Studies are under way to evaluate "SCPI" and monospecies sulfated beef and pork insulin in immunologic insulin resistance. Limited data suggest that "SC" is superior to "SPPI" in this condition.

Early in 1973 the FDA permitted U.S. insulin manufacturers to market their products as U-100, the goal being to eventually phase out U-40 and U-80 insulin, confusion over the latter two dose forms being a source of untold dosage errors. Present estimates are that the numbers of vials sold are equally divided between U-40, U-80, and U-100 insulin. Clearly, the availability of a disposable syringe which permits the accurate administration of small doses of insulin and vigorous educational efforts involving physicians, pharmacists, and nurses will hasten the feasibility of discontinuing U-40 and U-80 insulin in the United States.

12. DERMATOLOGIC PROBLEMS OF DIABETICS

John P. Tindall, M.D.

STATE OF THE ART AND FUTURE DIRECTIONS

Dermatologic problems in diabetics can be divided conveniently into three categories: (1) those which may be seen in latent diabetics or well-controlled diabetics; (2) those which are associated with derangements of intermediary metabolism as in the uncontrolled diabetic; and (3) those problems related to the therapy of diabetes such as lipoatrophy from insulin injections and allergic reaction to oral hypoglycemic agents. This discussion is confined to the first two.

Clearly the microangiopathy of the skin predisposes patients to problems in the first category, though they occur in non-diabetic people. They are the "atrophic circumscribed lesions of the lower extremities" or pigmented pretibial patches (PPP) first described by Medlin in 1974 (1). The most consistent finding in the capillaries of the papillary dermis is a thickening of the wall due to deposition of periodic acid-Schiff (P.A.S.) positive material. Although not pathognomonic for diabetes, focal deposits of the material are seen specifically in diabetes (2, 3). In addition to the vascular changes, there appears to be a change in the dermal elastic tissue in pre-diabetic patients (4). There are also specific changes seen in chronic acidosis, including some diabetics, as described by Smith and associates (5). They found increased elastic tissue staining in patients with chronic acidosis of various etiologies. It would appear reasonable that trauma would have a role in PPP as those dynamic lesions over the shins appear to have an average duration of one and one-half to two years. Histologic study of the individual lesions shows the vascular changes, but also alterations in dermal collagen (6).

Necrobiosis lipoidica diabeticorum (NLD) patients show carbohydrate intolerance in about 60 percent and a further 25 percent show latent diabetes with a cortisone stressed glucose tolerance test (7). The changes predisposing to the development of these lesions would appear to be primarily vascular, although this is still controversial. Connective tissue changes follow, as the collagen is markedly swollen and becomes necrobiotic. Then inflammatory reaction appears consisting of histocytes, multinucleated giant cells, epitheloid cells, and inflammatory cells, and later the fatty accumulations within cells, giving it the "lipoidica" change. Since vasculature is always involved, and despite the controversy of the association

and the etiology in NLD, there does appear to be a relationship with the vascular changes. The question that needs to be answered is whether the changes in the collagen are the result of the underlying disease, either with or without trauma, or whether it develops independently.

The therapy of necrobiosis lipoidica diabeticorum, if it is not ulcerated, is designed to reduce inflammatory reaction with topical steroid preparations with occlusion, Cordran tape, or injections of steroid suspension in low concentration. Since the disorder causes atrophy of its own, care must be taken not to produce further atrophy by over-treatment or by allowing relatively large amounts of the steroids suspension to persist in a localized area. Care of the ulcerated lesions is the same sort of routine as any other ulcerated area of skin in a diabetic. At the present time, the treatment is relatively unsatisfactory and efforts should be made to understand the basic vasculature problems of the microangiopathy in the skin, but also to look at the connective tissue changes in pre-diabetics and diabetics with and without acidosis. Efforts to understand the pH of the skin may be a direction that technically we are not yet prepared to pursue, but which may hold a key to what is really going on.

In the second category associated with derangements of intermediary metabolism, the area primarily of concern to the dermatologist is infections. When one gives a close look at the sort of skin infections seen in increased incidence and severity in diabetics, it becomes apparent that the poorly controlled diabetic has considerably more trouble than the well-controlled diabetic. It also becomes apparent that the kind of infections in these individuals are opportunistic in nature and represent overgrowth of what one would consider normal flora. With antibiotics the severity of staphylococcal problems is greatly lessened now than in former years. It would seem pertinent, however, that about 20 percent of cases of diabetes are discovered as a result of septic skin lesions and it has been recently found that diabetics requiring insulin carry Staphylococcus Aureus in the anterior nares more frequently than well-controlled diabetics and non-diabetics (8). It continues to be controversial as to how much benefit the antibacterial soaps are in these individuals, but no one questions the need for continued daily good hygiene. Continued research in mechanisms which allow uncontrolled diabetics to have this overgrowth of normal flora and their inability to control this flora is certainly needed. It is interesting in Drachman and associates work (9) that the impaired phagocytosis in diabetic rats seemed associated with hyperosmolarity of serum resulting from hyperglycemia and required a situation where leukocytes were crowded together in an inflammatory exudate. Enhancing the host response in situations such as recurrent

furunculosis may be more possible with the appearance of Levamisole on the scene. Levamisole stimulates phagocytosis and lymphocytosis, increases host resistance to infections under specific situations, and appears to boost cell mediated "delayed" skin hypersensitivity (10 and 11). In a single diabetic with recurrent furunculosis, the addition of Levamisole has allowed the patient to go for one month without new lesions for the first time in many months.

New advances in the control of Candida albicans infections also reflect the Levamisole situation and it is entirely possible that one should study this new investigational drug over a long period of time in diabetics on a double blind placebo controlled basis, keeping a careful track of infection problems to see if prevention really can be demonstrated. Additionally, two new topical preparations are now on the market as broad spectrum antibiotics -- 2% Miconozole (Micotin, Monistat) and Clotrimozole 1% (Lotrimin) (12 and 13). These agents, because they are broad spectrum, make it somewhat less important to identify whether the fungus is a dermatophytic one of Candida albicans. The Monistat is a vaginal preparation but can be used on the skin (Miconozole and Clotrimozole), particularly the intertriginous areas, and the two agents can be alternated in the patient with severe problems by changing the medications every other week, and continued good effect can be expected. These agents will shortly, I think, be available for nail problems, particularly the Miconozole and also as oral preparations.

REFERENCES

1. Medlin, H. An atrophic circumscribed skin lesion in the lower extremities of diabetics. Acta Med Scand Suppl 423, 1974.

2. Bercovici, E. and others. Microangiopathy in diabetes mellitus and non-diabetic dermatoses. Am J Med Sci 248: 20-26, 1964.

3. McMillan, D.E. and others. Forearm skin capillaries of diabetic, potential diabetic, and non-diabetic subjects: Changes seen by light microscope. Diabetes 15: 251-257, 1966.

4. Camerini-Davalos, R.A. and others. Preliminary observations on subjects with pre-diabetes. Diabetes 12: 508-518, 1963.

5. Finlayson, G.R. and others. Effects of chronic acidosis in connective tissue. JAMA 187: 659, 1974.

6. Binkley, G.W. Dermopathy in the diabetic syndrome. Arch Derm (Chicago) 92: 625-634, 1965.

7. Textbook of Dermatology, Vol. 2, Rook Wilkinson, Ebling, Second Edition, p. 1868.

8. Smith, J. and others. Nasal carriage of Staphylococcus Aureus and diabetes mellitus. Lancet II: 776, 1966.

9. Drachman, R.H. and others. Studies on the effect of experimental nonketotic diabetes mellitus on antibacterial defense. J Exp Med 124: 227-240, 1966.

10. Tripodi, D. and others. Drug-induced restoration of cutaneous delayed hypersensitivity in anergic patients with cancer. N Eng J Med: 289, 354-357, 1973.

11. Verhaegen, H. and others. Levamisole and the immune response. N Engl J Med: 289, 1148-1149, 1973.

12. Fulton, James E., Jr. Micronazole therapy for endemic fungal disease. Arch Derm, III: No. 5, 1975.

13. Clayton, Yvonne M. and Connor, Bruce L. Comparison of clotrimazole cream, Whitfield's ointment and Nystatin ointment for the topical treatment of ringworm infections, pityriasis versicolor, erythrasma, and candidiasis. British J of Dermatology 89, 297-303, 1973.

13. FUTURE MODALITIES IN TREATMENT -- AN OVERVIEW

Harold E. Lebovitz, M.D.

If new modalities of treatment for diabetes mellitus are to be developed several fundamental questions concerning the nature of the disease must be answered. Is diabetes mellitus a single disease or is it a series of related disorders whose clinical manifestations are similar? How do environmental factors precipitate the clinical disease in patients who have the genetic defect(s)? Which of the long-term complications of diabetes mellitus are related to the disturbed glucose regulation and which, if any, are independent of it?

Basic science advances in the last decade have redefined our understanding of the complex biochemical and hormonal regulation involved in carbohydrate and lipid homeostasis. Figure 1 schematically depicts the important features of this regulation and indicates how disturbances at a number of different sites might lead to an alteration of carbohydrate and lipid metabolism which we would call diabetes mellitus. Characterization of such defects in man could lead to defining subclasses of diabetes mellitus which might allow us to associate specific types of biochemical defects with specific clinical courses of disease progression.

The same schema can be used to conceptualize the development of therapeutic agents that could correct the metabolic defects of diabetes mellitus. Synthetic insulin peptides could be developed to treat diabetes mellitus more effectively than the currently available natural insulins (see Insulin Synthesis and Insulin Analogs by H. E. Lebovitz, Fogarty International Center Report on Diabetes Mellitus). Agents could be developed that increase insulin secretion (see Drugs Enhancing Insulin Secretion by H. E. Lebovitz, Fogarty International Center Report on Diabetes Mellitus). Similarly, hyperglycemia can be corrected by drugs that interfere with hepatic glucose production, activate insulin receptors, simulate insulin action within cells, potentiate insulin action or interfere with the actions of insulin antagonistic hormones such as glucagon, growth hormone, etc. The development of new drugs which act through such mechanisms is exemplified by somatostatin which is an agent that decreases hyperglycemia in diabetic patients probably by inhibiting glucagon secretion. While somatostatin will probably not be a useful drug because of the lack of specificity of its action and its possible toxic effects, it does provide a model compound which proves that agents other than insulin which affect the

various sites in glucose regulation are potentially useful in the treatment of diabetes mellitus.

An area in which the development of new modalities of treatment will be extremely important is that relating to the prevention of diabetes mellitus. Current concepts suggest that diabetes mellitus is a disease which has a genetic basis but is precipitated by environmental factors. Little is known relative to the mechanisms by which environmental factors precipitate the disease. Nutrition and eating patterns are important as the incidence of adult onset diabetes mellitus increases in societies with Western culture diets and is markedly increased in the obese. Agents which can influence the hypothalamic control of eating and/or modify hypothalamic centers that influence glucose regulation offer very promising means of decreasing the incidence of adult-onset diabetes mellitus. Several recent studies (Craighead -- Diabetes Excerpta Med. Int. Congress Series 312, 1974 pages 287-291 and Gamble, et al ibid pages 321-328) raise the possibility that some cases of juvenile onset diabetes mellitus may be the result of viral infection of the islets. If viruses do cause some cases of juvenile onset diabetes mellitus then the isolation of the virus and the production of a vaccine could eliminate these cases.

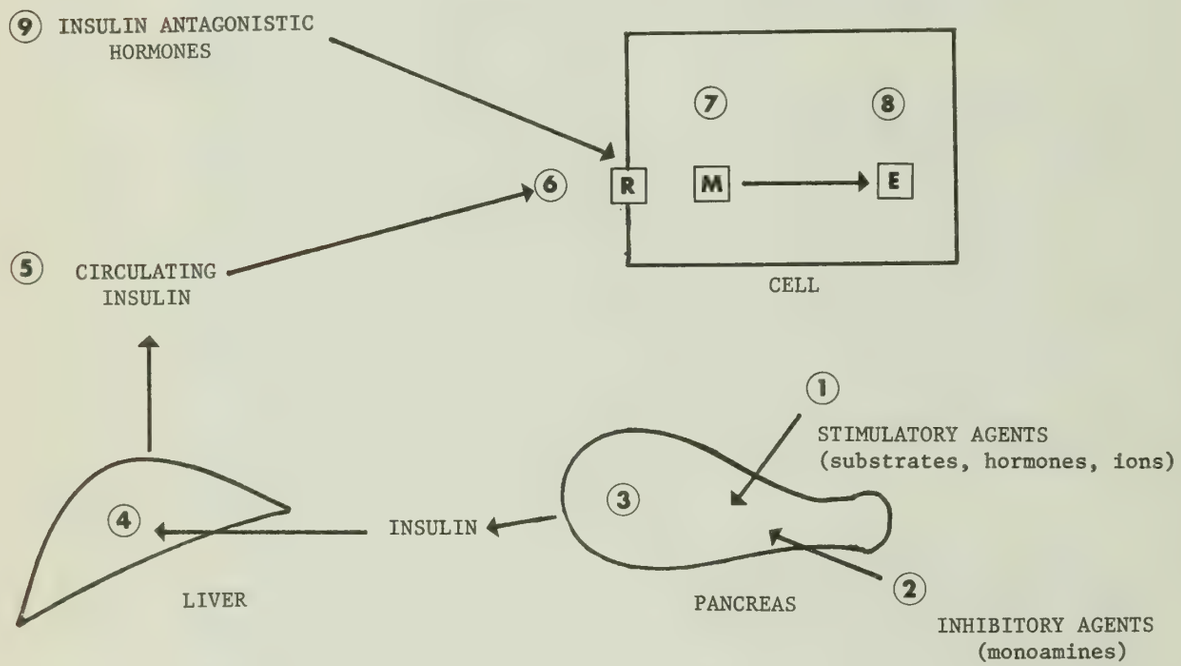
If, as most studies suggest, the long term complications of diabetes mellitus are related to the hyperglycemia, several approaches are available to eliminate the complications. Ideal maintenance of the blood glucose level in insulin deficient states could be achieved by an effective artificial pancreas or islet cell transplantation. Many technical and biological problems remain to be solved before either procedure can be a useful one for the treatment of patients. The artificial pancreas will need to be miniaturized and made error-free before the treatment of ambulatory patients will be possible. Islet cell transplantation carries with it all of the problems of tissue rejection which have not been solved for other organs yet. In addition, there is the question of the nature of the neurogenic control of the pancreas and if denervated islets in man will be able to function normally.

Some studies indicate that hyperglycemia may cause destructive changes in the lens and peripheral nerves by causing the intracellular accumulation of sorbitol. Aldose reductase inhibitors can inhibit the conversion of glucose to sorbitol and perhaps prevent the complications even if the hyperglycemia of diabetes is not corrected (Gabbay. New Engl. J. Med. 288: 830-836, 1973). Thus there is the potential for therapeutic agents which do not lower the blood sugar, but prevent its deleterious chronic effects.

New modalities of treatment for diabetes mellitus are on the horizon. These modalities are many and each will have specific applicability. They are all derived from the research efforts of the last two decades and all will require additional research for their final development and implementation.

FIGURE LEGENDS

Figure 1 -- Biochemical defects that could cause the carbohydrate and lipid abnormalities associated with diabetes mellitus. Defects 1, 2, and 3 are associated with decreased release of insulin from the pancreas. In defect 1, insulin secretion is impaired because the stimulatory release mechanism is disturbed. In defect 2, release is impaired absence of the presence of agents that inhibit the secretory process. Defect 3 is absence or abnormal insulin synthesis so that the pancreas does not contain any normal insulin to be secreted. Defect 4 is failure of the liver to respond to insulin. Defect 5 is excessive destruction of insulin either in passage through the liver or circulatory system. Defect 6 is an abnormality of the insulin receptor so that insulin does not bind. Defect 7 is failure to generate a secondary messenger after insulin attaches to the receptor. Defect 8 is failure of the generated intracellular messenger to effect the appropriate response inside the cell. Defect 9 is antagonism of insulin action by other hormones, and is probably due to events caused at sites 6 to 8 by those hormones.



APPENDIX B

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

CHART 1

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE I: AWARENESS - DETECTION OF SIGNS AND SYMPTOMS

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
I. AWARENESS - DETECTION OF SIGNS AND SYMPTOMS									
A. Public									
1. Present		X	X			-	-	-	
	Public Education 1) Symptoms 2) High Risk Groups 3) Prevalence 4) Impact 5) Impt. Followup 6) Treatability 7) Referral 8) Society's Responsibility 9) Health Maintenance			Health Educators	Mass Media: T.V., radio, phone, films, magazines, etc. Health education classes Health fairs				Homes Schools Community fac
2. Future		X	X			X	x	x	
	Public Education 1) Symptoms 2) High Risk Groups 3) Prevalence 4) Impact 5) Impt. Followup 6) Treatability 7) Referral 8) Society's Responsibility 9) Health Maintenance 10) Detection 11) Followup			Health Professionals School Health Educ. Health Depts. Vol. Health Organ. Primary Health Care Facilities 2° & 3° Diabetes Ctrs. Hospitals HMO's Media experts Patients & families	Mass Media: T.V., radio, phone, films, magazines, etc. Health education classes Registry Consistency in information Continued education Multimedia Health maintenance programs Health fairs Industrial business programs Diabetes Centers Automated tech. Methods of measurement of effectiveness				Homes Schools, hospitals, clinics, offices Community facilities, health facilities

Legend:
Large X = area of major concern or major activity.
Small x = area of lesser concern or less utilization.

CHART 2

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE I: AWARENESS - DETECTION OF SIGNS AND SYMPTOMS (CONTINUED)

I. DIABETES MANAGEMENT (Stage)	II. NEEDS			III. MANPOWER	IV. METHODS	V. WHERE IS TASK PROVIDED?			
	Task Required	Adult	Juv.	Who Performs Task	How is Task Provided?	Levels of Care: Prim.	Secon.	Tert.	Facility
I. AWARENESS - DETECTION OF SIGNS AND SYMPTOMS (cont'd)									
B. Professionals									
1. Present		X	X			X	x	x	
	Knowledge of roles & competencies of other professionals.			All health professionals.	Lectures and conferences				Hospitals, clinics, etc.
	Awareness of preventable morbidity and mortality.				Tapes				Offices, clinics, hospitals.
					T.V. and movies				Offices, clinics, hospitals.
					Journals				Offices, clinics hospitals
2. Future		X	X			X	x	x	
	All Public Items			M.D.'s	Lectures & conferences				Hospitals, clinics, etc.
	Knowledge of roles & competencies of other professionals.			Other health prof.	Tapes				Libraries, Office clinics, hospitals
	Awareness of preventable morbidity and mortality.				T.V. and movies				Offices, clinics hospitals & libraries.
					Continued Education				Community facility
					Curriculum development in areas of assessment, planning, education, systems, economy and evaluation in prof. schools.				Diabetes Centers

CHART 3

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE II: AVAILABILITY AND ACCESSIBILITY OF HEALTH CARE

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
II. AVAILABILITY AND ACCESSIBILITY OF HEALTH CARE									
A. Patients									
1. Present									
a. Acute Care		X	X			X	x	-	
	1) Phone contact			Receptionist	Phone				Office. clinic, hospital
	2) Appt.			Receptionist	Phone				
	3) Transportation			Pt., family or community	Transportation				
	4) Medical attention			M.D., lab personnel, R.N.	1:1 - or team care				
	5) Financial ability								
2. Future									
a. Acute Care		X	X			X	x	-	
	1) Means of communication			Pt. and appropriate health professionals	Computerized system Team care Planned transportation for/to pt. Comprehensive health care plan				Office, clinic, hospital, satellites
	2) Appt.								
	3) Transportation								
	4) Med. attention								
	5) Med. followup								
	6) Comprehensive coverage								

CHART 4

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE II: AVAILABILITY AND ACCESSIBILITY OF HEALTH CARE (CONTINUED)

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
II. AVAILABILITY AND ACCESSIBILITY OF HEALTH CARE (Cont'd)									
A. Patients (Cont'd) 3. Long-Term Care		X	X						
(Later in series)	1) Means of communication			M.D., Physician Assts. Nurse Dietitian Podiatrist Pharmacist Psychosocial workers Lab	Episodic or short-term planning - 1:1 - relationship	X	x	x	Neighborhood facility
	2) Appt.								Office, clinic, hospital
	3) Transportation								Office, clinic, hospital
	4) Medical attention								Clinic, hospital
	5) Medical followup								Clinic
	6) Comprehensive coverage								Clinic, hospital
	7) Availability of consultants								Clinic, hospital
	8) Ability to make appropriate use of resources								Clinic, hospital
	9) Ability of systemized care which is comprehensive, prophylactic and preventive in nature								Clinic, hospital
	10) Use consulting and referral resources appropriately			Community monitors	Capabilities and effectiveness of personnel which are (a) required and (b) available. Response to (acceptability). Various personnel and interactions with pt. characteristics Demography and epidemiology				Clinic, hospital Satellite and appropriate referral sites.

CHART 5

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE II: AVAILABILITY AND ACCESSIBILITY OF HEALTH CARE (CONTINUED)

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
II. AVAILABILITY AND ACCESSIBILITY OF HEALTH CARE (Cont'd)									
B. Professional Needs									
1. Present									
a. Acute Care	1) Ability to cover phone 2) Time availability 3) Manpower 4) Transportation for/to patient 5) Emergency consult.	X	X	M.D., Physician's Asst. R.N., Pharmacist, Patient	Phone, health care facility Patient transportation	X	x		Office, clinic, hospital
2. Future									
a. Acute Care	1) Means of communication 2) Time availability 3) Appropriate "team" of professionals 4) Availability of consultants 5) Comprehensive plan of action & responsibilities 6) Means of evaluation	X	X	Patient plus appropriate team members.	Computerized system Team care Planned transportation for/to pt. Comprehensive health care plan. Evaluative measures - PSRO's etc.	X	x		Office, clinic, hospital, satellites

CHART 6

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE II: AVAILABILITY AND ACCESSIBILITY OF HEALTH CARE (CONTINUED)

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
II. AVAILABILITY AND ACCESSIBILITY OF HEALTH CARE (Cont'd)									
B. Professional Needs 3. Long-Term Care		X	X						
(Later in series)	1) Means of communication			M.D.'s, physicians assistants	Long-range planned system - team approach.	X	x	x	Neighborhood facility.
	2) Appt.								Office, clinic, hospital
	3) Transportation								Clinic, Hospital
	4) Medical attention								Clinic, Hospital
	5) Medical followup								Clinic, Hospital
	6) Comprehensive coverage								Clinic, Hospital
	7) Availability of consultants								Clinic, Hospital
	8) Ability to make appropriate use of resources								Clinic, Hospital
	9) Ability of systemized care which is comprehensive, prophylatic and preventive in nature								Clinic, Hospital
	10) Use consulting and referral resources appropriately			Community monitors	Capabilities and effectiveness of personnel which are (a) required and (b) available. Response to (acceptability). Various personnel and interactions with pt. characteristics. Demography and epidemiology				Clinic, Hospital Satellite and appropriate referral sites.

CHART 7

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE III: PATIENT ASSESSMENT

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
III. PATIENT ASSESSMENT									
A. Patient History 1. Present	Physical and psychological assessment with patient and family; genetic, dietary, and socio-economic history	X	X	M.D., Physician's Assistant	1:1 Verbal	X	x	x	Office, clinic, hospital.
2. Future	Physical and psychological assessment with patient and family; genetic, dietary and socio-economic history	X	X	M.D., Physician's Asst. and other health professionals Computer Family	1:1 Verbal 1: Team Patient - Computer; system design acceptability and evaluation capabilities. Access to past records	X	x	x	Office, clinic, hospital and satellites
B. Professional Requirements 1. Present	History procurement of medical, diet, and socio-economic data	X	X	Patient Family	1:1 - Verbal 1:1 - Verbal	X	x	x	Office, clinic, hospital
2. Future	History procurement; physical, psychological assessment, diet and socio-economic data.	X	X	Patient Family Data Bank-Personnel Appropriate health professionals	1:1 1:team Printout Patient - Computer; system design acceptability and evaluation capabilities.	X	x	x	Office, clinic, hospital and satellites

CHART 8

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE IV: PATIENT EXAMINATION

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
IV. PATIENT EXAMINATION									
A. Patient Requirements									
1. Present		X	X						
	Physical Exam and psychological assess.			M.D.	1:1	X	x	x	Office, clinic, hospital
				Physician's Asst.	1:1				
2. Future		X	X						
	Physical Exam and psychological assess.			M.D., psychologist, Health Screening Center or other appropriate professionals.	1:1	X	x	x	Office, clinic, hospital
					1: team				Community center, clinic, hosp.
					Mass screening				Diabetes Center and satellites
					Knowledge necessary to perform: capabilities; dependability; hypochondriacal and pain tolerance measures; depression; stress				
					Protocols and algorithms.				
B. Professional Requirements									
1. Present		X	X						
	Physical Exam and psychological assess.			Patient & Family	1:1	X	x	x	
				Physician's Asst.	1:1				Office, clinic, hospital
2. Future		X	X						
	Physical Exam and psychological assess.			Informed, cooperative patient and family	1:1 stress	X	x	x	Office
				Physician's Asst.	1: team				Office
				Screening Center	Mass screening				Community Ctr., clinic, hosp., satellites and Diabetes Centers
				Nutritionist					
				Psychologist					
				Dentist					
				Ophthalmologist					
				Podiatrist					
				Other health profess.					

CHART 9

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE V: LABORATORY STUDIES

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
V. LABORATORY STUDIES									
A. Patient Requirements									
1. Present		X	X			X	x	x	
	Physician's Orders			M.D., Physician's Asst.	Individual lab test Automatic profile				Office, clinic, hospital
	Lab availability, competence & report. system			Lab personnel Clerk	Licensure Phone or send lab slip				
2. Future		X	X			X	x	x	
	Orders			M.D., psychologist or other appropriate health professional or patient-ordered	Individual lab test Automated profile Licensure Data bank and terminals				Office, clinic, hospital, satellite, Diabetes Center
	Lab availability competence			Lab personnel	Available system and terminals				
	Lab communications system.			Computer					
	Psychological screening and evaluation			Est. in reporting system					
B. Professional Requirements									
1. Present		X	X			X	x	x	
	Knowledge of appropriate tests			M.D. or consultants	Phone or visit				Office, clinic, hospital, satellite, Diabetes Center
	Lab availability			Lab tech	Individual test or automatic screening				
	Lab competency			Lab tech & state	Standards and Inspection				
	Lab communication			Clerk	Phone or lab slip				
	Patient cooperation			Patient	Cooperation, understanding				
2. Future		X	X			X	x	x	
	Knowledge of appropriate tests			M.D., psychologist or other appropriate health professional; or self-ordered.	Individual lab test Automated profile				Office, clinic, hospital, satellite, Diabetes Center
	Lab availability				Licensure				
	Lab competency				Quality assessment or standards program				
	Lab communication			Lab personnel	Data bank and terminals				
	Patient cooperation			Computer	Available systems and terminals				

CHART 10

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE VI: ANALYSIS AND DIAGNOSIS

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
VI. ANALYSIS AND DIAGNOSIS									
A. Patient Requirements									
1. Present	Collate history, physical exam, psychological assess. and lab.	X	X	M.D. and physician's asst.	1:1 - Review of materials	X	x	x	Office, hospital, and center
2. Future	Collate history, physical exam, psychological assess., socio-econ., family involvement.	X	X	Computer analysis Team involvement	Branch program 1:1 - Computer assistance and availability	X	x	x	Office, clinic, hospital, satellites, and Diabetes Centers.
B. Professional Requirements									
1. Present	Evaluate history, physical exam, psychological assess. and lab. Make diagnosis.	X	X	M.D.	1:1 effort	X	x	x	Office, clinic, hospital, Diabetes Center
2. Future	Evaluate history physical exam, psychological assess. and lab. Make diagnosis Evaluate pt's knowledge, skills, compliance and self-care capability.	X	X	M.D. and other appropriate health prof. Computer	1: team Computer - Asst. & Availability Computer algorithms; acceptability and evaluation Appropriate testing and skill demonstration capabilities.	X	x	x	Office, clinic, hospital, center, satellites and Diabetes Centers

CHART 11

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE VII: INFORMING PATIENT AND FAMILY

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
VII. INFORMING PATIENT AND FAMILY									
A. Patient Requirements									
1. Present		X	X			X	x	x	
	Have findings interpreted			M.D.	1:1 effort				Office, clinic, hospital, Center
	Have explanation of nature of disease				1:1 effort				" "
	Have understanding of treatment plan				1:1 effort				" "
	Assist in acceptance								
2. Future		X	X			X	x	x	" "
	Have findings interpreted			M.D. or physician's asst.	1:1 effort				" "
	Have explanation of nature of disease and implications			M.D. or other appropriate health prof.	1: team				" "
	Have understanding of treatment plan			M.D., physician's asst. or programmed learning	1:1 effort or group or programmed learning				
B. Professional Requirements									
1. Present		X	X			X	x	x	" "
	Patient and/or family capable, and accepting of findings.			Patient & family	1:1 effort				" "
	Patient and/or family capable of understanding basic nature of disease.			Patient & family	1:1 effort				" "
	Patient and/or family capable of accepting treatment plan.			Patient & family	1:1 effort				

CHART 12

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE VII: INFORMING PATIENT AND FAMILY (CONTINUED)

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
VII. INFORMING PATIENT AND FAMILY (Cont'd)									
2. Future		X	X						
	Interpret findings for patient			Patient, family, physician's asst., health professional assistance.	1:1 effort and family to health professional team	X	x	x	Office, clinic, hospital, Center
	Explain basic nature of disease			Patient, family, physician's assist. health professional assistance	1:1 effort and family to health professional team Education program				Office, clinic, hospital, Center
	Explain treatment plan			Patient, family, physician's asst., health professional assistance	1:1 effort and family to health professional team Education Program				Office, clinic, hospital, Center
	Explain implications of obesity, smoking, exercise patterns, etc.			Patient, family, physician's assist., health professional assistance.	1:1 effort and family to health professional team Education program				Office, clinic, hospital, Center

CHART 13

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE VIII: INITIAL TREATMENT PHASE

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
VIII. INITIAL TREATMENT PHASE									
1. Patient Requirements.									
a. Present	Initiation of individualized treatment	X	X	M.D.	1:1 - Initiate PRN treatment; knowledgeable and interested physician	X	x		Office, clinic, hospital.
b. Future	Initiation of individualized treatment plan	X	X	M.D. and team	1:1 and team effort in initiating treatment program. Knowledgeable and interested health professional team.	X	x		Office, clinic, hospital.
2. Professional Requirements									
a. Present	Initiate appropriate therapy	X	X	Knowledgeable patients willing and able to cooperate with health professionals	1:1 or consultation PRN	X	x		Office, clinic, hospital
b. Future	Initiate individual therapy appropriate to overall treatment plan.	X	X	Knowledgeable patients willing and able to cooperate with health professionals.	1:1 and team effort in a planned system of care. Appropriate financial coverage.	X	x		Office, clinic, hospital

CHART 14

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE IX: PLANNING PHASE - LONG TERM

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
IX. PLANNING PHASE: (LONG-TERM)									
A. Patient Requirements									
1. Present	Long-term planning	X	X	M.D.	1:1 effort - limited scope	X	x	x	Office, clinic hospital
2. Future	Long-term planning	X	X	M.D., team, patient and family	Group effort - computer assistance.	X	x	x	Office, clinic,
	Ability to express patient's needs, professional resources; comprehension, retention and acceptability				Planned system with assurance of appropriate financial reimbursement				hospital and Diabetes Center
B. Professional Requirements									
1. Present	Knowledge, awareness to prepare patient's education and management plan	X	X	M.D.	1:1 effort	X	x	x	Office, clinic, hospital and Diabetes Center
2. Future	Knowledge, awareness and resources to prepare patient's education and management plan.	X	X	M.D., team and health planner	Group effort, computer assistance systems capabilities and availability	X	x	x	Office, clinic, hospital and Diabetes Center
	Ability to recognize and respond to individual patient needs, professional resources								
	Key person acceptable to professionals with team needs, structure and leadership.			M.D. or other professional team leader.					

CHART 15

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE X: MANAGEMENT PHASE

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
X. MANAGEMENT PHASE									
A. Patient Requirements									
1. Present	Availability & access to care at reasonable cost.	X	X	M.D., R.N. and R.D.	Episodic	X	x	x	Office, clinic, hospital and Diabetes Center
2. Future	Availability & access to care at reasonable cost with planned systems for ongoing care.	X	X	Team effort: Patient, family and health professionals.	Long-range planned system of care meeting the needs of the informed cooperative patient.	X	x	x	Office, clinic, hospital and Diabetes Center
	Ability to express patient's needs; planned problem re-evaluation and continuing diagnosis; comprehension and retention; identification of factors involved in compliance.								Remote station
	Monitoring Support Philosophy of wellness			Family, health professionals; family, & community resources.					
B. Professional Requirements									
1. Present	Time, accessiblity & ability to respond to patient's needs.	X	X	M.D., R.D. & R.N.	Episodic	X	x	x	Office, clinic, hospital and Diabetes Center
2. Future	Time accessibility & ability to respond to patient's needs.	X	X	M.D., Team and Patient	Planning procedures and systems	X	x	x	Office, clinic, hospital and Diabetes Center
	Ability to identify and respond to patient and professional needs & responses; continuing diagnosis and evaluation; ability to respond to pt.'s comprehension, needs.			Family, health prof., family & community resources	Means of organizing, planning, and using communication between and evaluating efforts.				Remote station

CHART 16

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE XI: EDUCATION PHASE

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
XI. EDUCATION PHASE:									
A. Patient Requirements									
1. Present	Patient and Family Education	X	X	M.D., R.N., R.D.	1:1 or occasional group	X	x	x	Office, clinics, hospital and Diabetes Center
2. Future	Patient and Family education assessment teaching, support and evaluation.	X	X	Total team and peers	1:1 and group effort; utilizing individual, group and community resources in a planned delivery and support program.	X	x	x	Office, clinic, hospital and Diabetes Center
B. Professional Requirements									
1. Present	Awareness and knowledge of education plan.	X	X	M.D., R.N., Patient and family.	1:1 effort	X	x	x	Office, clinic, hospital and Diabetes Center
2. Future	Awareness and knowledge of educational assessment; planning delivery & evaluation. Recognition and reimbursement for educational services rendered.	X	X	M.D., professional team. Other patients.	1:1 and group planned efforts; utilizing individual, group and community resources. Concept of education recognized, integrated and reimbursed by health care system.	X	x	x	Office, clinic, hospital and Diabetes Center

CHART 17

ANALYSIS OF DIABETES CONTROL TASKS AND FUNCTIONS

STAGE XII: PROVIDE ONGOING EVALUATION

I. DIABETES MANAGEMENT (Stage)	II. NEEDS Task Required	Adult	Juv.	III. MANPOWER Who Performs Task	IV. METHODS How is Task Provided?	V. WHERE IS TASK PROVIDED? Levels of Care Prim.	Secon.	Tert.	Facility
XII. PROVIDE ONGOING EVALUATION									
A. Patient Requirements									
1. Present	Evaluation of care received.	X	X	Pt. and M.D.	PSRO	X	x	x	Hospital
2. Future	Evaluation of care received and directed toward ability to influence.	X	X	Pt. and health professionals and counselors.	Inservice and ambulatory evaluation Process and outcome evaluation within and across specialities--minimum and optimal standards.	X	x	x	Office, clinic, hospital and Diabetes Center
B. Professional Requirements									
1. Present	Evaluation of professional care.	X	X	M.D.	PSRO	X	x	x	Hospital
2. Future	Evaluation & ability to assess professional care and patient compliance.	X	X	Health professionals and consumers	Assessment of inservice and ambulatory care. Process and outcome evaluation within and across specialties--minimum and optimal standards.	X	x	x	

APPENDIX C

PAPERS ON TREATMENT PRESENTED TO NATIONAL COMMISSION ON DIABETES

1. TEAM CARE

Presented by
Maria T. Alogna, R.N.

In identifying the role and importance of the team, including the patient and family, it must be noted that in a chronic disease such as diabetes, the patient's role as sick is altered (1); he is usually actively functioning in society and he must adapt his treatment to his everyday life. And so he must become actively involved in the management of his disease. Health professionals, regardless of their knowledge and skill, cannot assume this role for the patient but rather must support him in the major role he has to play to control his disease.

Patients with diabetes are required to do their own urine tests, regulate their activity, inject their insulin, choose their diet wisely, and even alter their insulin according to their own needs. To carry out these activities in a proper and responsible manner, the patient must be well informed, continually motivated, and supported by an interested and knowledgeable health care team. Under these conditions, the acute complications of diabetes such as hypoglycemia and acidosis can be partially if not completely eliminated (3). The patient who is controlled with diet alone must be fully informed of the principles of diet therapy and their application if weight loss and success of reaching ideal body weight is expected to be achieved.

In education and treatment of the diabetic, the overlap into many of the related health fields forms the foundation for use of the diabetes health team as we know it today, including the patient and family, the physician, nurse, dietitian, podiatrist, and social worker primarily, and other health professionals which are needed and available. This outdates the medical team as it has been known in the past -- an active professional caring for a passive patient (7). The patient must become a recognized member of the health care team (5). His health care needs can only be met if he is informed and cooperating with knowledgeable and interested health professionals. Control of his disease will be affected adversely if he is not an active participant in the management and care.

Each team member must be aware of his role and responsibilities as well as of others and how they are interrelated to achieve the objectives of the health care plan. There should be mutual respect and open communication. The multidiscipline approach demands leadership and coordination and this logically and legally is designated to the physician. He must delegate to other team members with a true appreciation of the skills, study, and experience of those health professionals. It is only with a combined and coordinated effort of all team members, including the patient and family, that goals are likely to be achieved.

The physician providing primary care has little or no time for patient education or dietary instruction. Studies have demonstrated that patient knowledge of adherence to diet is inadequate and their performance of necessary skills is often suboptimal (11, 6). Many of the deficiencies of this conventional system can be remedied by establishing an interdisciplinary team, combining long-term physician management with on-going nurse supervision, dietary counseling, and access and referral to an expanded team when needed (6). When health professionals and patients are actively working with and supporting one another, the quality of health care improves, patient satisfaction increases, health care costs decrease, and there is maximum utilization of many combined years of study and experience of various health professionals. A team approach can be said to be the most effective means to deliver health care and meet health care needs of any defined population. The impact it has is reflected in our own setting in decreased admissions for ketoacidosis and hypoglycemia and a reduction in the number of amputations (a decline of 20% from 1973-1974) (2).

The need and use of teams at various levels; primary, secondary, and tertiary; will vary and will be dictated by the characteristics and needs of the population they serve. A physician delivering primary care in a group practice who has access to a nurse clinician in diabetes, a nutritionist, and other specialists in the community contrasts sharply with the general practitioner in a rural area working alone or with only a clerk-receptionist. The patients in each situation can be assessed to have similar needs, yet the means to achieve those needs are confined or restricted by the circumstances and must be adapted so as to be realistically achieved. To a great extent, it would seem logical to use existing resources in both areas to accomplish the same objectives. This may be the skeletal team of a physician and public health nurse alone in the rural area with access to a university setting for selected occasional referrals and consultations. Perhaps the use of mini teams to go out to the rural settings from a "model" center to consult and assist may be necessary and feasible. However, the question must be answered of the rural physician who gives diabetes a very low profile and does not think it as necessary to use the services of a public health nurse and may resent the interference of the consulting team. How can he be made aware of the importance of the team approach?

If an existing program is hospital based, this may be the place to begin. It must not, however, exist and serve only hospital patients. Patient needs extend beyond hospitalization and therefore the hospital must provide follow-up and must extend into the community. To do this, the needs of the community should be studied as well as resources in the community. Organizational structures already established within the community can give a tremendous boost as cooperative partners in providing health services (8). If a program is sensitive to the needs and demands of that community, it will very likely be accepted by it. It will provide the mechanism for the introduction, understanding, and acceptance

of innovative methods for the delivery of primary care (8). It will actually reach the patient with easy availability.

At the secondary level of specialists exists the primary need of communication. Communication of the interrelated disease processes and complications is necessary with coordinated efforts to achieve, if not prevent them, with early detection and treatment. Those health professionals at this level must view themselves and see their role as part of the expanded team, striving for the same objectives of treatment as that of the primary physician. Tertiary in that it is an extension of specialist care, is really an extension of the team and they may be called upon to consult, educate, and provide guidance since they will be closest to the scientific and therapeutic advances. At an American Health Congress, it was stressed that however the delivery system emerges, it must provide the means by which interpersonal, interinstitutional, interdisciplinary, and intercommunity lines may be crossed in the care of the chronically ill (9). I think this may be applied here.

Team organization and planning must begin with education and training of the health professionals of the team, before education and training of the patient can occur, if it is to be optimal. This is evidenced by the lack of knowledge of diabetes of medical personnel, doctors, nurses, and dietitians, demonstrated by Etzwiler and carried out by multiple-choice tests (4). Patients will never be well-informed unless we begin with the health professionals on the team. This was found to be true in our own observations when searching for reasons why inpatient staff nurses were not educating patients. It was due to their own lack of knowledge of what to teach, while others willing to teach, misinformed patients. Nurses and dietitians attending a five-day seminar offered twice monthly in the Emory-Grady Diabetes Unit through a grant from the Georgia Department of Human Resources are pre- and post-tested with a 55-question multiple-choice test. The scores of a group of 125 nurses and dietitians improved from a mean pre-test score of 36 correct questions to a mean post-test score of 47 correct questions. Most of the participants valued not only the formal and informal lectures of pathophysiology, treatment, and complications, but most importantly the opportunity to observe a team of health professionals actively evaluating and educating patients. This points out the importance of access to models of teaching and treatment programs for team members.

Unless health professionals are trained as teams, we have found that they can accomplish little on their own when they return to their health agencies. There must be leadership in their setting to prevent fragmented efforts and inconsistency in approaches to education and treatment of diabetic patients. Many nurses and dietitians who have attended our Current Methods in Diabetes course have expressed concern in what they will be able to accomplish when they return to their settings, without physician support or someone to organize the effort.

The needs and problems of the population to be served need to be analyzed in order to structure the treatment and education program for those patients. A diversity of approaches will be necessary; very likely one pattern will not be found to meet the needs of all patients at all levels (3).

Once a team has been designated, the value of team conferences to the overall plan cannot be overemphasized. It is during these conferences that goals can be set (involving the patient) and team members may accept the responsibility for implementing the plan and evaluating the progress (10). Provisions should be made for some mechanism, whatever works best, for a formal method of communication as ongoing treatment and education is conducted. Team members need to document what has been done in order to evaluate their efforts later on.

There will be times when it will be necessary for the expanded team, and this may be of the primary, secondary, and tertiary level to meet and formulate guidelines and protocols for identified problems. This proved to be extremely valuable to our own team when we consulted with Dr. Paul Brand at the USPHS hospital in Carville, Louisiana, who has worked for years with lower extremity lesions in patients with Hansen's Disease (leprosy). Our purpose in going was to consult with their team regarding an amputee protocol for prevention and rehabilitation. We went as a team of primary care physicians, nurses, dietitians, podiatrist, social worker, physical therapist, shoemaker, and vascular and orthopedic surgeons. The initial seminar and discussion of the problem led to continued meetings of the core amputee team when we returned to develop the program and regular amputee rounds with the vascular surgeon and others. I use this as an example to illustrate the type of team care which can only result in improving quality of health care delivered to diabetics. Its effectiveness will be measured by the continuing audit of amputations being conducted by the podiatrist and surgery diabetes teaching nurse and the possible prevention of many.

This again points out the need for teams to study the problems of their population, consult with experts in the field, devise and implement a plan of action which best suits their population and evaluate its effectiveness continually.

Assessment of team care may be measured by success in reaching objectives of the care and education program, identifying problems and solutions in implementation of the plan, and documenting improved quality of health care -- perhaps in terms of decreasing acute complications and hospital admissions. When the team providing the education is also providing the primary care (which seems ideal), it becomes easier to measure these parameters. Teams providing education alone have found it difficult to measure more than patient knowledge. It can be said that a team is functioning at its best if they are meeting the needs of the group of patients they serve.

In summary it can be said that the concept of team care as described is certainly not new. Yet its importance in the care and management of the diabetic patient cannot be overemphasized. It seems clearly indicated that varied approaches and systems must be developed to meet the diverse needs of patients at all levels of care: primary, secondary, and tertiary.

I would like to thank the Commission for the opportunity to make this presentation today.

REFERENCES

1. Callahan, E. M. et al. The "sick" role in chronic illness: Some reactions. J Chronic Dis 19:883-97, 1966.

2. Davidson, J. K. et al. Assessment of program effectiveness at Grady Memorial Hospital. Article in preparation.

3. Etzwiler, D. D. Patient education. Diabete Mellitus, Diagnosis and Treatment III: 185-189, 1971.

4. Etzwiler, D. D. Who's teaching the diabetic. Diabetes 16: #2, 111-117, 1967.

5. Etzwiler, D. D. The patient is a member of the medical team. J Am Diet Assoc 61:421-26, 1972.

6. Graber, A. L. Interdisciplinary approach to the management of ambulatory patients. Diabetes Mellitus: Diagnosis and Treatment III: 191-194, 1971.

7. McDonald, G. W. Diabetes Supplement of the National Health Survey. J Am Diet Assoc 52:118, 1968.

8. Phillips, D. F. Reaching out to rural communities. JAHA 46, June 16, 1972.

9. The American Health Congress in Review. Hospitals, JAHA 46:75, Sept 1, 1972.

10. Ulrich, M. R., and Kelley, K. M. Patient care includes teaching: Hospitals, JAHA 46:59-65.

11. Williams, T. F. et al. The clinical picture of diabetic control studied in four settings. Am J Public Health 57:441-51, Mar 1967.

A DEFINITION OF THE VARIOUS LEVELS OF MEDICAL CARE

Definition of Primary Care. From Physician Scarcity Area Scholarship Program regulations, 42 CFR part 57 subpart W.

Source: 39 Federal Register 28, 7/30, August 9, 1974.

Section 57.2202, Definitions, paragraph j, Primary Care:

> The practice of primary care means the provision of health services characterized by the delivery of first contact medicine, the assumption of longitudinal responsibility for the patient regardless of the presence or absence of disease, and the integration of the physical, psychological and social aspects of health care to the limits of the capability of the practitioner. For purposes of this section, primary care shall include the fields of general practice, family practice, general internal medicine, general pediatrics, and general obstetrics and gynecology.

Definitions of Secondary and Tertiary Care. Source: Division of Medicine, Physician Specialty Distribution: 1975. Second in a series of annual papers from the Bureau of Health Resources Development; dated March 25, 1975.

> _/Secondary care_/. . . may be defined as a resource to health professionals in the primary (or tertiary) care sector. Patients enter it by referral, having unusual or complex problems which are often diagnostically and therapeutically poorly defined. The knowledge and techniques of the consultant sector are intermediate in generality and breadth. Characteristically, they are oriented to disease process of illness (rather than to health). Secondary care generally involves not only the classically educated specialist but also the subspecialist.
>
> For completeness, tertiary care is defined as a resource to the primary and secondary care sector. Patients enter it by referral, because of the complexity of diagnosis and/or treatment. Tertiary care services are accommodated at the frontier of

scientific and therapeutic advancement and are closely linked to biomedical research and its application. Because of their nature, such services are often regionalized and require specialized equipment or highly specialized teams of health workers. When a distinction is made between primary and specialist care, both secondary and tertiary care are included in the latter category.

2. DIETARY MANAGEMENT IN THE TREATMENT OF DIABETES MELLITUS

Presented by
Mary Ellen Collins, R.D.

Nutrition care of persons with diabetes mellitus can be traced to ancient Greek medicine and is valid today. For our own day, I refer to the succinct special report of the Expert Committee on Food and Nutrition of the American Diabetes Association, "Principles of Nutrition + Dietary Recommendations for Patients with Diabetes Mellitus."1

Dietary control of diabetes is considered important for the following reasons:

1. Minimization and prevention of symptoms accompanying poorly controlled diabetes.

2. Achievement and maintenance of ideal body weight through adequate nutritional intake.

3. Regulation of blood sugar. Limitation of the effects of abnormal carbohydrate and lipid metabolism -- although there is discussion on the range of acceptable deviation from so called normal values.

4. Possible decreased requirement of exogenous insulin or oral hypoglycemic agents. The conclusions of the University Group Diabetes Program would support the decrease in hypoglycemic agents, thereby placing additional emphasis in dietary control.

5. Possible prevention and amelioration of cardiovascular complications associated with diabetes.

The formulation and implementation of the dietary prescription is based on the rationale just described. In formulating a dietary prescription, the dietitian, in collaboration with the doctor, should first consider normal nutrition needs.

1. Normal Nutritional Needs

The diet prescription should approach the Recommended Dietary Allowances for an individual's height, weight, sex, and state in the life cycle. To ensure adequate intake of macro- and micro-nutrients, a wide variety of food items should be consumed on a regular basis.

2. Calories

a) In the insulin-dependent diabetic, caloric level is set to assure achievement and/or maintenance of ideal body weight. In the young insulin-dependent diabetic, adequate calories should be provided to support normal growth and development. Day-to-day consistency of caloric intake is necessary to provide substrate for the prescribed insulin dosage. Caloric needs must be adjusted according to energy expended in physical activity.

b) In the adult-onset, obese, noninsulin-dependent diabetic, a hypocaloric diet is necessary to promote weight loss. In the adult-onset, normal-weight, noninsulin-dependent diabetic, an isocaloric, balanced diet is prescribed. In other words, overweight people eat less -- normal weight people eat enough to maintain weight.

3. Distribution of Carbohydrate, Protein, Fat Ratios in Meals and Snacks

In insulin-dependent diabetes, even distribution of carbohydrate, protein, and fat is recommended. In adult-onset, noninsulin-dependent diabetes, even distribution may be desirable but not crucial.

4. Simple Sugars

Simple sugars, or "concentrated sweets", refer to the monosaccharides (e.g., glucose, fructose) and disaccharides (e.g., sucrose, lactose) occurring in many commonly consumed foods and beverages. Such items include table sugar, honey, molasses, candy, and carbonated beverages. "Rapid absorption of simple sugars should be avoided because of associated hyperglycemic peak". This peak would refer to the question, "What is an acceptable range for blood sugar?" -- "Does a hyperglycemic peak make a difference?" These questions must be discussed by the doctors, nurses, and dietitians caring for and teaching patients and families.

5. Frequency and Timing of Meals and Snacks

In general, regularly spaced meals and snacks are recommended. Of first importance, is recognition of a meal pattern based, as much as possible, on an individual's usual lifestyle. If exogenous insulin is required, the dosage should be adjusted according to one's established habits, or irregular habits, such as those of an adolescent, shift worker, entertainer, like Mary Tyler Moore, or athlete Bobby Clark.

6. Complicating Medical Problems

Frequently, other medical problems such as renal and cardiovascular are involved and in such cases the diet prescription must include appropriate modifications.

7. Cholesterol and Saturated Fats

A moderate reduction of total cholesterol and saturated fat is recommended for both insulin-dependent and noninsulin-dependent diabetics.

In implementing a diet, the above factors should be carefully considered and then individualized to each patient. Accurate assessment of a person's educational level, personal dietary preferences, and work and living habits will make realistic dietary teaching possible. This concept is not new. In 1927, Frances Stern, a pioneer in dietetics, described in an article in the Journal of the American Medical Association, her teaching methods with newly arrived immigrants in the out-patient department of the Boston Dispensary (also regulation outside the hospital). In this article, Miss Stern reported that a modification in food habits could be accomplished only when dietary teaching incorporated foods usually eaten by the patient in his home setting. Miss Stern advocated a variety of individual teaching methods and educational tools such as food models. Since 1927, we have seen developed a sophisticated array of teaching machines, educational games, patient manuals, expensive and well done pictoral handbooks based on the familiar exchange lists prepared by the American Diabetic and American Dietetic Associations. These lists were developed in the 1950's and have become the focus of much of our nutrition teaching. From teaching materials available today, it would seem that there has been a concerted effort to prepare teaching aids easily understood by the patients. This is assuming that the exchange system or a modification of it is the answer, and in most cases, assuming a certain degree of literacy.

I would like to pose the question -- Do we know how effective our teaching efforts have been? What does this question mean? Does it mean process or outcome objective? It is frequently asked in evaluating the quality of health care. Does effective mean we get the message across -- explained in a simple body of ideas or knowledge? Does it mean compliance, or a combination of knowledge and compliance? The literature demonstrates that we interpret some of the statistical findings in a broader meaning than what was actually measured.

I would like to refer to a review by Dr. Kelly West.[2] In this review Dr. West refers to two, frequently quoted studies, concerning effectiveness of dietary control. The first study is the Diabetes Supplement of the National Health Survey published in 1968.[3, 4]

I quote Dr. West, "It was found that 22% of diabetics stated that they were never given a diet for their diabetes, another 25% had received a diet but said they did not follow it." Interesting to note, I would like to quote Sara Stulb, the nutrition consultant of Diabetes and Arthritis Control Program, National Center for Chronic Disease Control, who refers to the same study,[5] "77% reported having received a diet, but only about 3/4 of these said they had been taught to use it." It is interesting to see how we look at statictics differently.

Sara Stulb notes that in the survey that 26% had good knowledge, 82% had an understanding of calories. This group was found to have a higher educational level than the general population. Ninety percent of this group were taught to use their diet. Twenty-six percent taught by dietitians, 14% by physicians. Sara Stulb then concludes, dietitians are the best teachers. This may be a valid conclusion but does it mean that a person who doesn't know the exchanges[5] is not eating well or caring for himself adequately?

In taking a closer look at the National Health Survey, Dr. Glen W. McDonald, Chief, Diabetes and Arthritis Control Program[3] reports it is important to note other general characteristics of the diabetic population. For example, the data indicated that most persons with diabetes (72%) go to doctors' offices for care and treatment; 11% had seen podiatrists and 52% had seen a doctor concerning their eyes during the past two years. Few reported utilization of Visiting Nurse service. Another finding showed the distribution of family income and education for the diabetic population. Many patients come from low income families. About half of those who were interviewed indicated that they were from families with an income below $4000 per year. This compares with approximately one fourth of the general population who come from this income group. In terms of prevalence, the rate of diabetes in families with annual incomes under $4000 is twice that among families with incomes of $4000 or more.

Another consideration is that 50% of those interviewed indicated less than a ninth grade education and 14% less than a fifth grade. This means that literature written on a fifth grade level may not be understood by 14% of the adults with diabetes and that literature written for the ninth grade student may not be understood by half of the persons in the U.S.

Dr. West also refers to the Study reported by T. Franklin Williams, M.D. and colleagues at the University of North Carolina, Chapel Hill, which was reported in the Journal of The American Dietetic Association, July, 1967.[6] This study documents the dietary errors made at home by patients with diabetes. Only a very small minority followed their prescribed care accurately. (12% followed diet accurately.) It is interesting to note that the Social Worker reported that 50% of the patients in the study had less than the minimal amount of money required

to buy the prescribed diet. It would seem to me that we could expect poor compliance. In conclusion, this study suggested these approaches for the future: (a) assessment of individual needs, (b) formulation of a plan for each patient, (c) implementation of the plan, and (d) continuing review + follow up.

I think these questions should be asked of dietitians:

What can be done to improve the picture?
What factors might account for poor dietary adherence?

I suggest the following areas for discussion:

1. The body of knowledge and how it is taught -- individualization -- meeting the needs of the low income family -- and people with limited formal education.

2. We have assumed that the exchange method system can be adapted to all. This assumption has given us an excuse not to look for alternative methods. Development of alternative methods is something which needs the combined creativity of the dietitian and the media people.

3. Although we recognize that teaching a patient about his disease and diet is important, I believe we need to focus on why people find compliance so difficult or change so hard.

Unless you are forced to change a habit, you assume it must be easy. I would like to quote from a press release of a distinguished medical investigator of carbohydrate metabolism:

> A few simple changes in the American diet and habits of life, could greatly reduce the number of people who acquire chronic diseases and who may die from them.

As a practitioner dealing with the realities of implementing changes in food habits and the enormous complexity of what may appear, from an investigative level, as a "simple change", I think the implication of simplicity is misleading! While admittedly the change "per se" may appear on paper to be a simple "you tell me what to do" approach followed by an "I'll do it" result, the process of effecting long established behavioral patterns, especially food habits, is one of our <u>most difficult</u> challenges.

How to facilitate change, more commonly referred to as behavior modification therapy, would appear to us to be a cornerstone in every treatment program. It has been our observation that everyone, regardless of level of education and intelligence, can learn specific knowledge about diet and diabetes. But it is the behavioral factors

that prevent adherence; and these factors should be identified, evaluated, and then modified in order to effect long-term change. This should be done in partnership with the patient.

Recommendations

I would make the following recommendations.

1. The need for new methods and approaches in teaching:

   a) better knowledge of diabetes and diet.
   b) communication tools such as the media that reach all segments of the population.
   c) alternatives to the exchange system.
   d) the incorporation of behavior modification in all patient teaching.

2. Nutrition teaching and care should be available and accessible to all segments of the population. In order to accomplish this I recommend:

   a) amendments to social security legislation to assure nutritional care as a reimbursable service.
   b) regulations which specify diet counseling services as an eligible service for third party payment in fee-for-service systems and as a required component of capitation systems.
   c) legislative language specific to nutritional care as a required component of all health care systems.
   d) appropriations to assure adequate funding for providing nutritional care services.
   e) guidelines and policies which assure that nutritional care services be provided under the supervision of qualified nutrition personnel.

3. Funding to study methods of developing, implementing, and evaluating nutrition care and teaching.

   a) support research into methodology of dietetic care and teaching for maximum benefit.
   b) support basic and applied research on factors which affect the consumer food supply.
      1) nutrition content. 2) availability, acceptance, cost.
   c) design and evaluate long-term, continued, systematic, sequential teaching programs -- not episodic teaching.
   d) define the components of effectiveness and develop indicator to measure effectiveness.

4. Assure sufficient, competent nutrition personnel to provide nutrition care and teaching throughout primary, secondary and tertiary care.

   a) an appropriation and availability of funds for continued specialized education and training of dietitians in the area of metabolism, physiology, behavioral sciences, biochemical and applied nutrition.
   b) in addition, dietitians as well as other health professionals, need to understand the economic, cultural, political influences on planning and providing health care.
   c) the cost-benefit ratio in dietetic care.
   d) an appropriation of funds to study new and expanding roles and more effective utilization of nutrition manpower. This includes supportive health workers and their role in all levels of care.

REFERENCES

1. Bierman, E. J. Principles of nutrition and dietary recommendations for patients with diabetes mellitus. Diabetes 20: No. 9, 1971.

2. West, Kelly. Diet therapy in diabetes: An analysis of failure. Ann Intern Med 79: No. 3, Sep 1973.

3. McDonald, S. W. The Diabetes Supplement of the National Health Survey. J Am Diet Assoc 52: 118, 1968.

4. Fuchsberg, R. R. The Diabetes Supplement of the National Health Survey. Methods and Techniques. J Am Diet Assoc 52: 121, 1968.

5. Stulb, S. C. The Diabetes Supplement of the National Health Survey. J Am Diet Assoc 52: May, 1968.

6. Williams, T. F. Dietary errors made at home by patients with diabetes. J Am Diet Assoc 51: July, 1967.

3. DIABETES IN THE YOUNG

Presented by
Arthur F. Kohrman, M.D.

There are two important reasons why we believe that the problems of diabetes mellitus in the young deserve special consideration: first, because diabetes in the rapidly developing person presents unique challenges in management; and second, because close attention to the young diabetic affords special opportunities for acquiring important new knowledge concerning the etiology and natural history of diabetes itself. Certainly, for children with diabetes, the critical question is the relationship of the type of early management to the ultimate nature, severity, and time of onset of serious complications. An important perspective is that of the necessary inseparability of care, education, and research.

The number of children with diabetes in the United States is unknown. Using uncertain estimates, a rough range for the number of school-age juvenile diabetics in the U.S. is 51,000 to 85,000; other estimates place the total number of diabetics between birth and 21 years of age at 90,000 to 150,000; the actual figure probably falls closer to the lower number. Juvenile diabetes occurs relatively infrequently in the practice of any one physician or group and, except in urban areas, cases are widely scattered.

The child with diabetes poses particular challenges to our care systems by virtue of the need for intensive initial support and treatment, and continuous, long-term care; thus, of all diabetics, juveniles are likely to incur the greatest cost per case, and the total cost for their care will be large when compared to the proportion of juveniles in the total diabetic population. Because of the relative infrequency of occurrence of juvenile diabetes, the primary care physician may well have little ongoing experience with the management of diabetes; yet, he does not wish to abdicate his primary care responsibility to secondary or tertiary providers at the very time when familiarity with the family and the patient and the confidence it generates may be the most important factor in diabetic management. We do not yet know what optimal management is -- there is a large gap between knowledge and practice; in the less than 50 years of insulin treatment of juvenile diabetes no large group of patients has been assembled nor has treatment been sufficiently standardized or outcomes followed for long enough to provide us with data which would permit certainty in choosing one or another course or modality of management. It is important that well-planned longitudinal studies begin as soon as possible, because useful data will not emerge until several years after their initiation.

The services apparently important for the juvenile diabetic will be relatively high-cost services, and the consumer group for which they are intended will be relatively small. In this regard, the management of juvenile diabetes shares some characteristics with the problems of management of other chronic conditions in childhood. Many of the special services needed are very expensive, and when measured in terms of cost per patient, almost or actually prohibitive. Few, if any, of these can be supported on a fee-for-service basis.

A coordinated program of care will, in itself, be the basis for generation of important new knowledge about diabetes. In children, diabetes is seen in its most dramatic, complete form, usually with abrupt onset. The early natural history unfolds over a relatively short period of time, and then the individual usually maintains a characteristic pattern for many years into adulthood. Careful studies, coordinated on a national basis, could allow us to correlate treatment given at the various relatively distinct stages of the disease with the results of that treatment.

Our goal is the provision of necessary care and educational services to all juvenile diabetics in a framework which permits essential research questions to be pursued simultaneously. It is obvious that these goals, continuity of care during the life of each patient, can best be met through coordination and collaboration of child and adult health care services. One recurrent and dominant theme must be stressed: education is care. The educational programs focused on the patient, his family, and the professionals who guide his care are not ancillary to medical care, but in fact are the keystone of the care scheme. Establishment of new or augmented programs for education must be done in a way that permits careful evaluation of the most effective content, the methods which best insure learning by the target audience, and the kinds of professionals best suited to the task.

The wide variations across the U.S. in geography, demography, and established patterns of medical care and referral make it clear that no single center model will be suitable for all regions. However, it is essential that all the centers share common program goals and objectives; most important, record-keeping and the evaluation of outcomes must be coordinated on a national basis, to permit the collection of sufficient data to make rational modifications in approaches to management. We must establish a national registry for juvenile diabetes, for which the regional centers could become data-collection points. The major role of regional centers should not be to centralize all patient care, a goal unrealistic as well as undesirable, but, rather to provide a source for expanding the knowledge about care of diabetes into the communities and medical practices where primary and secondary care are now being given. One of the functions of the regional centers is the exploration of, and training for, new health professional careers relevant to the needs of diabetics of all ages. The diabetes center

should have functions and contacts much broader than those historically present in university hospital or clinic programs; the regional diabetes center must have adequate fiscal and administrative autonomy to fulfill its patient-centered missions.

4. TREATMENT OF DIABETES
ADULT TYPE

Presented by
Addison B. Scoville, Jr., M.D.
Past-President
American Diabetes Association

Mr. Chairman and Members of the Commission:

INTRODUCTION

I am grateful to Dr. Etzwiler for inviting me to appear before the Commission and hope that I don't wander too far astray from my assigned subject. My experience in treating patients with diabetes encompasses 38 years and for many of those years my private practice has been restricted to the management of patients with diabetes, both adults and children. Although I am a Board certified internist, these diabetic children have been referred to me because none of the pediatricians saw a sufficient number of young diabetics to feel comfortable in being responsible for their care. I am involved in the care of diabetic patients at the primary, secondary, and tertiary levels and, because I am a diabetic in very personal care of myself. For almost 30 years I have been teaching and as clinical professor of medicine at Vanderbilt Medical School have been involved in teaching medical students and house staff, including your Chairman and at least one member of a Study Committee, as well as nurses and dietitians. My activities with the American Diabetes Association have included teaching professionals and non-professional, at national, regional, state, and local levels. Finally, my background in research as a National Research Council Fellow during my training and more recently in clinical research would suggest that those of us who are practicing diabetologists have a very sincere interest and involvement in all aspects of diabetes.

GOALS OF TREATMENT

The management of the adult diabetic does not differ significantly from the management of the child. Whether insulin is used depends upon the philosophy of the physician, the acceptance of the patient, the height and duration of hyperglycemia, and the presence of certain complications.

The goals of treatment for both groups are the same.

(1) Avoid ketoacidosis and hyperosmolar coma.
(2) Minimize troublesome symptoms.
(3) Prevent certain complications.
(4) Hopefully delay, modify, or prevent other complications.

PHILOSOPHY OF TREATMENT

The physician must develop a philosophy of management to which he is so dedicated that his staff and ultimately his patient are motivated to follow his program with enthusiasm. I believe in trying to achieve metabolic control because if restoring normality to the deranged chemical constituents of the blood is not desirable, then diabetes is truly unique among diseases. When such control is obtained, many patients with diabetes develop a hitherto unknown sense of wellbeing. Finally, until it is demonstrated that good metabolic control is harmful, it will remain my objective.

MOTIVATION OF PATIENT

Because diabetes is life-long, each patient must be motivated to adhere diligently to a prescribed regimen for many years. The association of diabetes with its many complications is information which every patient must know and we feel that this knowledge should be explained to him at the time he is first seen. There is no attempt to minimize the significance of this diagnosis and its associated problems. In years past such information was frequently withheld from patients and as a consequence, many did not adhere to the prescribed regimen. How to impart this knowledge without fostering constant dread for the future is a skill the physician must develop. Bear Bryant is reported to have said that coaching was most difficult because if a play was not executed correctly and he kicked one player in the pants that player would work twice as hard the next time, while if he kicked another player that one would quit the team. The diabetologist must be so skillful in motivating that each patient will work harder the next time and no one will quit the team. A good relationship between the patient and his personal physician is a most satisfactory way to achieve good control. The personal physician should also be involved in the patient education program so that at each visit the principles of good patient care can be re-enforced. An office with an adequate professional staff which is well organized is capable of treating and educating as many as 40 to 50 diabetics per day.

DIETARY THERAPY

The cornerstone of treatment is the diet and an individual diet is calculated for each patient when first seen. Considerable time must be devoted to diet instruction and, unfortunately, most physicians have little knowledge or interest in dietary therapy. The patient is taught that the only significant differences between a diabetic and non-diabetic diet are that concentrated carbohydrates are forbidden and the caloric content of the diet must remain the same from day to day. The physician must thoroughly understand the diet and be knowledgeable enough about nutrition to answer the numerous questions which bubble forth from the newly diagnosed diabetic. New techniques in dietary instruction are urgently needed. The physician must be aware of the patient's work schedule and life pattern and make appropriate changes in the meal. The diet must be adequate in calories to maintain or produce ideal body weight, be balanced and provide not only sufficient protein, fat and carbohydrate, but also essential trace minerals, vitamins, etc., be appropriate for the ethnic and economic background of the patient, and omit those foods which are not tasty or cause flatulence or distress to the patient.

HYPOGLYCEMIC AGENTS

If hyperglycemia persists despite good dietary management, it may become necessary to add certain hypoglycemic agents in order to achieve better blood glucose control. How much hyperglycemia is acceptable before beginning the use of hypoglycemic agents depends upon a number of factors including, the physician's philosophy and the patient's desires, his age, complications, visual acuity, and the possible presence of paralyses or Parkinsonism, etc. Whether oral hypoglycemics should be used is an unresolved question. The UGDP study and its review by the Biometric Society is still controversial and because of this, we have adopted the following regimen in my office. In those patients who do not achieve satisfactory control with diet alone, insulin therapy is considered to be the safest. However, oral hypoglycemic therapy may be used in certain patients such as those with senility, blindness, paralyses or Parkinsonism, but only after a thorough explanation of the results of the UGDP report and not until the implications of that study are thoroughly understood by the patient and/or his family. This is done in an attempt to avoid future medical-legal difficulties and falls in the category of defensive medicine. In addition, the patients are also warned that most oral hypoglycemics lower blood sugar in a manner similar to insulin and, as with insulin, hypoglycemic reactions may occur.

However, if patients are not well controlled on oral therapy, then it is discontinued and insulin prescribed as an adjunct to diet. Of course, children and young adults thought to be ketosis-prone are

started immediately on diet and insulin without a trial on diet alone. The dose of insulin is regulated in order to achieve the best possible 24 hour control of blood glucose without risking hypoglycemia. Successful control in some patients requires adjustment in diet and snack schedules, as well as the use of insulin mixtures. In those patients requiring 30 to 40 units of depot insulin (NPH or Lente) daily, over one-half will require two injections of insulin each day. Insulin-requiring patients must be taught about the types of insulin, concentrations of insulin, time activity of the various insulins, methods of injection, measuring insulin dose, use and care of syringes and needles, sterilization of equipment, etc. We do not change the dose of depot insulin more often than every three to four days since stabilization of blood glucose must occur before any modification of that dose can be contemplated. Children, with parent supervision for measuring dose, begin their own insulin injections at six years of age. Incidentally, we also start a one to one relationship with each child at the age of six. The child is seen alone, his disease discussed, his problems clarified, and his laboratory work explained without the parent's presence. The parent, however, meets us at a different time to be kept fully informed as to the progress of the child. We feel that this regimen has been responsible for emotional stability and lack of resentment of the disease in these children.

CONTROL OF DIABETES

Control of diabetes is followed with blood glucose determinations obtained at specified times. In those on diet alone or diet with oral hypoglycemics, blood glucose levels are obtained two hours post-prandially. In those on depot insulins the blood glucose levels are determined before breakfast and four hours after lunch in order to assure adequate control. In younger patients, blood glucose levels are also obtained before lunch and at bedtime. In this way, it is possible to regulate insulin dose so that normoglycemia is present throughout the entire 24 hours.

The two-drop Clinitest method and Acetest for urine testing are taught each patient. In unusual situations or when a concurrent infection is present, the urine is tested four times a day (before meals and at bedtime), but in the controlled diabetic the early morning urine alone is tested. If this test shows glycosuria then more frequent urine testing during that day is required. Urine testing of the patient under poor control is of little value since the glucose threshold rises and associated with a blood glucose of 280 mg % a patient may have a urine which is negative for glucose. As a result, the patient may develop a sense of security which is not at all justified. In children, on the other hand, a very low renal threshold may be responsible for a blood glucose of 78 mg % with heavy glycosuria. These difficulties in interpretation of urine tests are much more common

in those who have not been under good control for a long time. Although we feel that urine testing does have some benefit, its limitations must be emphasized to the patient and recognized by the physician.

MAINTENANCE OF CONTROL

The new diabetic patient is normally seen in the office every five to seven days until he is controlled. The interval is then increased to one month, two months, and finally three months, so that if well controlled he is seen by the physician four times yearly with a complete physical examination on one of those visits. On each visit the patient is seen and at that time his weight, blood pressure, heart, lungs, feet, and occasionally fundi are examined, he is reinstructed, and the results of his blood glucose determinations and routine urinalysis evaluated. On the basis of these results, modifications or additions to therapy are prescribed.

It is our policy to admit to the hospital only those diabetics with complications (diabetic-related or not) or those having difficulty in unraveling the mysteries of the diet. We feel that most patients can be more satisfactorily controlled in an ambulatory setting so that the effects of normal activity on control can be monitored. Nashville is fortunate in having a teaching dietitian in fulltime private practice who helps instruct patients in both the hospital and ambulatory setting. This has been of great assistance to the physician who wishes to control diabetics in an ambulatory environment. The reduction in cost to the patient by controlling patients in the physician's office rather than the hospital is significant. This emphasizes the need for medical insurance compensation for such ambulatory care in the same way it would have compensated for such care in a hospital setting.

Education of the patient about his disease is essential. We have been using the "Programmed Course for Diabetes" prepared by and available from the American Diabetes Association.

PREVENTABLE COMPLICATIONS

There are four types of preventable complications associated with diabetes.

(1) The first is hypoglycemia or low blood sugar. This is usually caused by an increase in activity without an associated increase in food intake before the extra activity was undertaken. We have discontinued the term "exercise" and substituted "activity" because many did not realize that ironing, scrubbing the kitchen floor, or digging in the garden were also exercises capable of inducing hypoglycemia.

The next most common cause for hypoglycemia is being late for a meal or not eating the required food for a meal or snack. Finally, the least common cause is too much insulin. Only if hypoglycemic reactions occur at the same time each day is too much insulin responsible for the low blood sugar. As soon as the patient recovers from his reaction he is taught to ask "why" he had the reaction so he can avoid having similar reactions at a future date. Unless he does this immediately after his reaction, the cause of his low blood sugar may never be determined.

The patient on insulin or sulfonylureas and his family are taught to use sugar, juice, Karo syrup, etc., by mouth if hypoglycemia occurs and if the reaction prevents oral feeding, the family is instructed to use Glucagon intramuscularly. Diabetic patients are required to have some form of glucose with them at all times and this is especially important when they are driving automobiles.

(2) The most dangerous complication of diabetes and the only one responsible for a patient dying of his disease is ketoacidosis and coma. Since the most common cause of ketoacidosis is an infection often associated with the omission of insulin, each patient is taught the pre-acidotic regimen. This has been so successful that during the past 16 years none of my patients who has followed these rules has developed ketoacidosis. To summarize, when glycosuria is noted, the diet is not altered and the patient is kept on his usual dose of depot insulin. Fluids are forced and supplementary regular or quick-acting insulin is given before each meal that significant glycosuria is present. We feel that if this regimen was taught to all diabetics and followed by all ketosis-prone diabetics, diabetic ketoacidosis would cease to exist except for an occasional instance in newly discovered diabetics.

(3) Urinary tract infections including pyelonephritis and its dreaded complication, renal papillary necrosis, are common in diabetics, especially females. On routine office visits if the urine shows pyuria it is rechecked with a clean-catch specimen and if pyuria is still present treatment, usually with a sulfonamide, is prescribed. If pyuria is present on the return visit, a urine culture is obtained and sensitivities used to determine the appropriate antibiotic. Following what is deemed sufficient therapy with the antibiotic, investigation of the urinary tract is begun with intravenous pyelograms, cystometric studies, cystoscopic examination, etc. Although we recognize that bladder atony due to diabetic neuropathy is not uncommon, urethral stricture and prostatic enlargement also occur in diabetics, and unlike the neuropathic lesion are easily correctable. We feel that prompt attention to early pyuria may help to prevent the development of more serious urinary tract problems in the future.

(4) Foot care is essential on a continuing basis if amputations are to be avoided. The patient must be instructed in proper shoe size and fit, cleanliness of feet, changing hose daily, inspecting feet nightly (preferably by mate), avoidance of heat in any form, the proper care of corns and calluses, and proper trimming of toenails. Since many patients with diabetes are obese, have poor vision, or are not supple, I make it a practice to trim the toenails on such patients and at the same time inspect the feet and shoes. I suspect I have trimmed more toenails than any physician in this country. Such care might be given satisfactorily by a podiatrist well trained in diabetes. During the past ten years we have not had a single patient undergo amputation who had been followed regularly in our office.

RECOMMENDATIONS

In conclusion, it should be emphasized that a regimen of management including patient care and education is essential until we have a cure or preventative for diabetes. Research must be fully supported, but until the time when diabetes like the dodo bird disappears, each patient must be provided the best education and professional treatment of which we are capable. At present the quality of care of the diabetic throughout this country is poor. Too many physicians trained in years past were taught that insulin and diet were the only answer. If the patient did poorly, it was because he did not follow his diet or take his insulin correctly. As in Old Testament times -- his sins were being visited upon him. We must teach these older physicians, as well as the younger ones, that we do not have all of the answers about diabetes, there is much to be learned, and many of the troubles diabetics have now must be traced directly to medicine's current inadequacies.

My strongest recommendation, therefore, is to emphasize the need for professional education. Patient care cannot be improved until the physicians providing primary care are better informed about diabetes, its treatment, its complications, and the prevention of some complications. Because of my involvement each year with the annual professional educational program of the American Diabetes Association, I felt that many of the primary care physicians who needed instruction did not attend while those providing secondary and tertiary care attended year after year. The American Diabetes Association is now developing programs of professional education at regional levels with the hope that the decrease in time involved with traveling by physicians will entice more primary care physicians to avail themselves of such instruction. My involvement with the educational programs of the Regional Medical Program and county medical societies has been equally disappointing. Motivating physicians to attend courses of instruction has become a very real and unsolved problem.

As a supplement to existing teaching programs, I would propose that teams consisting of a physician, nurse, and dietitian be available attached to various types of teaching and diabetic centers. Such teams would operate within an assigned region for consultation, hopefully using the consulted patient for ward round discussion for all physicians in that area. Ward round discussions are a well recognized and successful teaching technique and would not require local physicians to leave home and practice. In order to test the feasibility of this technique for at-home consultation, pilot studies especially in rural areas could be established. Although this technique does not seem applicable to metropolitan areas, it is conceivable that it might be successfully used in the inner city.

Paramedical personnel, especially nurses and dietitians, should also be provided specialized training in the education, care, and management of diabetic patients. Unlike physicians, most nurses and dietitians are subsidized by hospitals and medical centers to attend the courses of instruction and, therefore, can be expected to travel some distance in order to attend the appropriate diabetic instruction classes. Nurse practitioners trained in diabetes can provide much needed care. As already mentioned, newer techniques for diet instruction are necessary. In addition, the development of newer methods for motivating and educating professionals, patients, and their families must be undertaken in the near future.

I do not mean to imply that our present oral hypoglycemics and insulins could not be improved. However, if our present available information and techniques could be utilized to their maximum, the quality of care available for diabetics would be tremendously improved.

Again I thank you for this privilege of talking with you about problems which all of us hope your Commission can help to resolve.

Name_____No.____Age___Onset of Diabetes_____Date____,197__

Topics discussed	Date instructed
1. Diabetes: definition incidence	
2. Symptoms	
3. Cause	
a. Heredity	
b. Age groups	
c. Obesity	
d. Pancreas	
e. Antagonists	
4. Diagnosis	
a. Glycosuria	
b. Blood sugar	
(1) Fasting	
(2) Postprandial	
c. Glucose tolerance	
5. Objectives of treatment	
a. Diet	
b. Insulin	
6. Treatment	
a. Diet	
(1) Definition of carbohydrate, protein, fat	
(2) Exchange	
(3) Estimated	
b. Insulin	
(1) Types	
a. U-40, U-80, U-100	
b. Short-acting	
c. Long-acting	
(2) Action	
(3) Source	
(4) Rotation	
(5) Mixing	
(6) Syringes U-40, U-80, U-100	
a. Glass	
b. Disposable	
(7) Care of Equipment	
c. Exercise	

Topics discussed	Date instructed
7. Philosophy of living with diabetes	
a. Education	
b. Hygiene and foot care	
8. Care during illness	
a. Importance of continuing insulin	
9. Insulin reaction	
a. Cause	
b. Symptoms	
c. Prevention	
d. Treatment	
10. Diabetic coma	
a. Cause	
b. Symptoms	
c. Prevention	
d. Treatment	
11. Other complications	
a. Vascular	
(1) Eyes	
(2) Feet	
(3) Kidneys	
12. Demonstration	
a. Tests	
(1) Clinitest, Tes-Tape, Clinistix	
(2) Acetone	
b. Injection	
(1) Dosage	
(2) Mixing insulin	
(3) Preparing injection	
(4) Administration	
(5) Care of needle and syringe	

TREATMENT OF HYPOGLYCEMIA

IF CONSCIOUS

SUGAR BY MOUTH. REPEAT AS NECESSARY

THEN GLASS OF MILK.

IF UNCONSCIOUS

GLUCAGON -- 1 MG I.M. STAT

THEN 1000 CC D5W I.V. -- WHEN RUNNING FREELY

50 CC OF D50W I.V. IN TUBING. REPEAT AS NECESSARY

DETERMINE WHY REACTION OCCURRED.

PRE-ACIDOTIC REGIME

1. SAME DIET -- LIQUID OR BLAND FOODS IF NECESSARY.
2. SAME DEPOT INSULIN.
3. WATER -- ONE GLASS EVERY 1/2 - 1 HOUR.
4. TEST URINE BEFORE EACH MEAL.
5. IF URINE SHOWS 2-5% BEFORE ANY MEAL TAKE _____ UNITS REGULAR INSULIN BEFORE THAT MEAL.
6. IF NAUSEA, VOMITING, FAST BREATHING, ABDOMINAL PAIN -- CALL PHYSICIAN.

APPENDIX D

EXAMPLES OF PROPOSED PSRO GUIDELINES FOR DIABETES MELLITUS

1. SUGGESTED GUIDELINES FOR PSRO'S*

a. DIABETES MELLITUS

I. JUSTIFICATION FOR ADMISSION

A. Uncontrolled diabetes
- institution of insulin therapy
- pregnancy
- reregulation of brittle diabetes

B. Uncontrolled vomiting

C. Uncontrolled infection

D. Insulin resistance

II. LENGTH OF STAY

A. INITIAL LENGTH OF STAY ASSIGNMENT FOR PRIMARY DIAGNOSIS OF PROBLEM (numerical determinations to be established locally based on statistical norms)

B. EXTENDED LENGTH OF STAY ASSIGNMENT (numerical determination to be established based on the individual patient's condition at the end of the initial length of stay period)

1. REASONS FOR EXTENDING THE INITIAL LENGTH OF STAY

a. Progression into ketoacidosis
b. Complicating chronic infection
c. Labile or brittle diabetes

III. VALIDATION OF:

A. DIAGNOSIS

1. Fasting and post-prandial hyperglycemia
2. Abnormal glucose tolerance test
3. History of the disease

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*Prepared by AMA under subcontract to Office of Professional Standards Review, DHEW, 1975.

B. REASONS FOR ADMISSION

1. Pregnancy (IA)
2. Insulin therapy or change in insulin therapy (IA)
3. Requirement for IV fluids or antibiotics (IC)
4. Insulin requirement greater than 200 units/day (IE)

IV. CRITICAL DIAGNOSTIC AND THERAPEUTIC SERVICES

	Screening Benchmark
A. Repetitive analysis blood and urine sugars	100%
B. Diet order	100%
C. Instruction in diet, urine testing, footcare, insulin administration when indicated	100%
D. Obstetrical care when appropriate	100%
E. Disease counseling	100%

V. DISCHARGE STATUS

A. Improved control of diabetes

VI. COMPLICATIONS

A. PRIMARY DISEASE AND TREATMENT-SPECIFIC COMPLICATIONS

1. Development of hypoglycemia with therapy
2. Further deterioration in diabetic control
   - hyperglycemia
   - ketosis
   - acidosis

B. NON-SPECIFIC INDICATORS

None

Developed by AMERICAN COLLEGE OF PHYSICIANS/AMERICAN SOCIETY OF INTERNAL MEDICINE

b. DIABETES MELLITUS -- COMA AND PRECOMA

I. JUSTIFICATION FOR ADMISSION

A. Acidosis, ketoacidosis, lactic acidosis with or without coma
B. Hyperosmolar state with dehydration

II. LENGTH OF STAY

A. INITIAL LENGTH OF STAY ASSIGNMENT FOR PRIMARY DIAGNOSIS OR PROBLEM (numerical determinations to be established locally based on statistical norms)

B. EXTENDED LENGTH OF STAY ASSIGNMENT (numerical determinations to be established based on the individual patient's condition at the end of the initial length of stay period)

1. REASONS FOR EXTENDING THE INITIAL LENGTH OF STAY

a. Complicating underlying concomitant or precipitating illness
b. Complications of therapy including cardiovascular complication, hypoglycemia, cerebrovascular accident, renal failure
c. Regulation of new or previously inadequately regulated diabetic

II. VALIDATION OF:

A. DIAGNOSIS

1. Altered sensorium
2. $PaCO_2$ less then 15 mms, and arterial pH less than 7.30
3. Blood glucose greater than 500 mg percent
4. Serum osmolality greater than 320 mOsm/Kg

B. REASONS FOR ADMISSION

No entry necessary

IV. CRITICAL DIAGNOSTIC AND THERAPEUTIC SERVICES

	Screening Benchmark
A. Repetitive monitoring of sensorium, $PaCO_2$, blood glucose, serum osmolality	100%
B. Repetitive electrolyte and renal function assessment	100%
C. Insulin, intravenous fluid, and electrolyte therapy	100%

V. DISCHARGE STATUS

A. Ambulatory
B. Resolution of reason for admission
C. Satisfactory control of hyperglycemia
D. Absence of ketonuria/ketosis

VI. COMPLICATIONS

A. PRIMARY DISEASE AND TREATMENT-SPECIFIC COMPLICATIONS

1. Deterioration of consciousness coincident with rapid correction of hyperglycemia, pH or dehydration
2. Irreversible coma
3. Hypoglycemia
4. Cardiovascular complication, congestive heart failure or cerebrovascular accident (CVA)

B. NON-SPECIFIC INDICATORS

None

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c. DIABETES MELLITUS, JUVENILE

H-ICDA
250
250.3
250.4

I. JUSTIFICATION FOR ADMISSION

A. New diagnosis of juvenile diabetes mellitus
B. Presence of ketoacidosis
C. Vomiting and/or diarrhea
D. Diabetes out of control
E. Inability of responsible party to cope or comply

II. LENGTH OF STAY

A. INITIAL LENGTH OF STAY ASSIGNMENT FOR PRIMARY DIAGNOSIS OR PROBLEM (numerical determinations to be established locally based on statistical norms)

B. EXTENDED LENGTH OF STAY ASSIGNMENT (numerical determinations to be established based on the individual patient's condition at the end of the initial length of stay period)

1. REASONS FOR EXTENDING THE INITIAL LENGTH OF STAY

a. Failure of resolution of reason for admission
b. Infection
c. Diabetes not regulated

III. VALIDATION OF:

A. DIAGNOSIS

1. Blood sugar of or a history of a blood sugar greater than 180 mg %

B. REASONS FOR ADMISSION

1. Blood CO_2 less than 15 meq/L (IB)
2. Vomiting or diarrhea for more than 24 hours (IC)
3. Recurrent hypoglycemia (blood glucose less than 50 mg %) and/or hyperglycemia (blood glucose greater than 180 mg %) (ID)

IV. CRITICAL DIAGNOSTIC AND THERAPEUTIC SERVICES

	Screening Benchmark
A. Two blood sugar determinations and two electrolyte determinations, if dehydrated or if ketones in urine	100%
B. At least four urine determinations per day for sugar and ketones	100%
C. Insulin	100%
D. Parenteral fluids, if ketoacidotic (CO_2 is less than 15 meq/L)	100%
E. Treatment with oral hypoglycemic agents	0%

V. DISCHARGE STATUS

A. Alive
B. Resolution of reason for admittance (except IA)
C. Patient or responsible party able to handle diet, insulin administration and insulin reactions

VI. COMPLICATIONS

A. PRIMARY DISEASE AND TREATMENT-SPECIFIC COMPLICATIONS

1. Infections
2. Ketoacidosis, fluid and or electrolyte imbalance
3. Insulin reaction
4. Adjustment reaction of childhood or adolescence

B. NON-SPECIFIC INDICATORS

1. Surgery when ketoacidotic
2. Psychiatric consultation
3. Length of stay greater than 14 days

Developed by AMERICAN ACADEMY OF PEDIATRICS

d. DIABETES MELLITUS, WITH CHRONIC COMPLICATIONS

I. JUSTIFICATION FOR ADMISSION

A. Nephropathy
- nephrotic syndrome
- uremia

B. Major neuropathy
- persistent pain
- visceral

C. Peripheral vascular disease
- gangrene
- non-healing skin ulceration

D. Cellulitis

E. Osteomyelitis

II. LENGTH OF STAY

A. INITIAL LENGTH OF STAY ASSIGNMENT FOR PRIMARY DIAGNOSIS OR PROBLEM (numerical determinations to be established locally based on statistical norms)

B. EXTENDED LENGTH OF STAY ASSIGNMENT (numerical determinations to be established based on the individual patient's condition at the end of the initial length of stay period)

1. REASONS FOR EXTENDING THE INITIAL LENGTH OF STAY

a. Osteomyelitis
b. Persistence of skin lesions
c. Progressive uremia
d. Neurosurgical intervention for progressive retinopathy

III. VALIDATION OF:

A. DIAGNOSIS

1. Documented diabetes mellitus
2. Fundoscopic confirmation of retinopathy
3. Documented clinical evidence of neuropathy
4. Documentation of unhealed skin ulceration or infection
5. Refer to validation criteria on section uremia and nephrotic syndrome

B. REASONS FOR ADMISSION

No entry necessary

IV. CRITICAL DIAGNOSTIC AND THERAPEUTIC SERVICES	Screening Benchmark
A. Culture and appropriate antibiotic therapy (infection)	100%
B. Adequate control hyperglycemia and glycosuria	100%
C. Orders for local heat or elevation in face of peripheral arterial insufficiency	0%
D. Dehydration for diagnostic services in presence of proteinuria or renal insufficiency	0%

V. DISCHARGE STATUS

A. Therapy initiated, completed or in progress

VI. COMPLICATIONS

A. PRIMARY DISEASE AND TREATMENT-SPECIFIC COMPLICATIONS

1. Blindness
2. Amputation
3. Acute or progressive renal failure
4. Septicemia

B. NON-SPECIFIC INDICATORS

1. Positive blood culture

Developed by AMERICAN COLLEGE OF PHYSICIANS/AMERICAN SOCIETY OF INTERNAL MEDICINE

2. PSRO RECOMMENDATIONS FOR DIABETES MELLITUS IN CHILDREN*

I. INDICATIONS FOR ADMISSION:

A. Recent onset of diabetes
B. Marked hyperglycemia and/or acidosis or coma
C. Severe hypoglycemic reaction or convulsions if repeated and/or with residual neurological signs
D. Vomiting or dehydration
E. Associated infections, especially those not responsive to or requiring more than usual ambulatory therapy
F. Surgery
G. Potentially fatal illness or injury
H. Inability or failure to comply with established management program to degree threatening general health or life

II. HOSPITAL SERVICES RECOMMENDED:

A. Complete history and physical examination (See attached)
B. Laboratory
   (1) CBC (including diff. and w.b.c.)
   (2) Urinalysis (repeated for sugar and ketones)
   (3) Blood glucose
   (4) Serum Na, K, CL, Co_2, B.U.N.
C. Treatment
   (1) Insulin
   (2) Adequate fluids (I.V. or oral)
   (3) Electrolyte replacement

III. HOSPITAL SERVICES CONSISTENT WITH DIAGNOSIS:

A. Laboratory
   (1) 24 hour urine glucose
   (2) Lipid electrophoresis
   (3) Insulin assays
   (4) Serum cholesterol and triglycerides
   (5) Glucose tolerance test
   (6) I.V.P.
   (7) Serum acetones
   (8) Urine culture
   (9) Blood culture
   (10) Throat culture
   (11) Serum osmolality

*Source: Lawson Wilkins Pediatric Endocrine Society

B. Chest x-ray and/or T.B. skin test
C. Treatment
   (1) I.V. fluids (including bicarbonate or lactate)
   (2) Gastric lavage
   (3) Diabetic diet
   (4) Antibiotics
   (5) Insulin

IV. EXPECTED LENGTH OF STAY:

A. New diagnosis -- 5-10 days
B. Established diagnosis -- 1-5 days

V. COMPLICATIONS EXTENDING LENGTH OF STAY:

A. New case requiring management and family orientation
B. Associated infection not responsive to usual therapy
C. Renal complications
D. Poor family environment
E. Post-operative complications

VI. INDICATIONS FOR DISCHARGE:

A. Full state of consciousness and activity
B. Blood chemistries (except glucose) = mean $\pm$ 2 S.D.
C. Education of parents and child on home management under way and sufficient for home care

ADDENDUM: CRITICAL ISSUES IN DIAGNOSIS OF JUVENILE DIABETES MELLITUS

I. History:

a. Polyuria
b. Polydypsia
c. Polyphagia
d. Weight loss or lack of gain
e. Decreased activity
f. Personality changes
g. Vomiting, abdominal pain, lethargy
h. Coma
i. Constipation
j. Enuresis
k. Nocturia
l. Family history
m. Fever, recent infection or other illness
n. Recent emotional history
o. Recent school performance

II. Physical Examination:

Special Attention To:

a. Hydration
b. Wasting - height and weight
c. Respiratory rate and depth (Kussmaul)
d. Responsiveness
i. Total P.E. including rectal examination
f. Temperature and blood pressure

III. Laboratory:

a. Urine
   1. Sugar
   2. Acetone
b. Blood sugar should be obtained immediately if diabetes is suspected by either history, physical examination or urinalysis since the disease may have a fulminating course
c. Serum acetone

MINIMAL CHECK-LIST

A. History:
   1. Polyuria
   2. Polydypsia
   3. Polyphagia
   4. Enuresis
   5. Nocturia
   6. Hypoglycemia -- number of reactions, time of day and severity
   7. Diet -- number of calories; weighed, exchange or self-selected diet and compliance
   8. Insulin: dosage and kind, time of injection
   9. Daily urine glucose results (note whether 1st or 2nd void and time of collection)
   10. Problems or questions
   11. School progress -- or problems
   12. Injection site rotation
   13. Vocational/life outlook

B. Complete Physical Examination -- with emphasis on:
   1. Weight and (%) plotted on grid
   2. Height and (%) plotted on grid
   3. Blood pressure
   4. Liver size
   5. Fundi
   6. Visual acuity
   7. Inspection of injection sites and notation of abnormalities
   8. In late adolescence and early adulthood: Pedal pulses; screening neurological exam

C. Laboratory:
   1. Routine urinalysis (and culture on indication)
   2. 24 hr. or fractional quantitative urine glucose determinations
   3. 2 hr. pp BS or FBS
   4. Cholesterol
   5. Triglycerides

   On Indication:
   6. Serum acetone
   7. Serum electrolytes
   8. Blood sugar (random)

3. THERAPEUTIC NEEDS OF PERSONS WITH DIABETES MELLITUS

In the judgment of this Workgroup on Treatment, therapeutic needs of persons with diabetes should be met in various levels of care settings as follows:

A. Primary Care Services

1. Periodic preventive checkup -- general plus specific attention to potential diabetic problems
2. Regular reassessment and adjustment of treatment
3. Systematic and continuing education
4. Availability for problems, emergencies and psycho/social support
5. Foot care

B. Secondary Care Services

1. Onset of insulin-dependent diabetes
2. Diabetic ketoacidosis or hyperosmolar coma
3. Pregnancy in women with diabetes
4. Diabetic retinopathy, nephropathy, neuropathy
5. Surgery in diabetic persons
6. Insulin-resistant
7. Systematic and continuing education
8. Psycho/social support

C. Tertiary Care Services

1. Advance diabetic retinopathy requires consideration of hotocoagulation or pituitary ablation or other new methods of therapy
2. Advanced diabetic nephropathy requiring consideration of transplantation/Dialysis
3. Experimental treatment, e.g., islet cell transplantation, "artificial pancreas," etc.
4. Systematic and continuing education
5. Psycho/social support

The Pediatric Work Group at its meeting of September 10 recommended adding the following items to the proposed PSRO guidelines previously prepared by the Lawson Wilkins Pediatric Endocrine Society:

Patient or parent responsibility able to:

1. Handle meal planning including variations to compensate for activity
2. Administer insulin correctly and recognize the nature of insulin inertia
3. Test urine for sugar acetone
4. Recognize and prevent insulin (hyperglycemia) reaction and ketoacidosis and alter management appropriately
5. Know what to do in case of illness
6. Handle social-emotional impact of diabetes as a family

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III. C. Education of child (parent) to include:

(a) explanation of nature of disease
(b) method of and rationale of urine testing
(c) administration of insulin
(d) meal planning

IV. C. Education of child and parent on home management begun to include:

1. Handle meal planning to include variations to compensate for activity
2. Administer insulin correctly and recognize the nature of insulin inertia
3. Test urine for sugar acetone
4. Recognize and prevent insulin (hyperglycemia) reaction and ketoacidosis and alter management properly
5. Know what to do in case of illness
6. Handle social-emotional impact of diabetes as a family

APPENDIX E

STATEMENT ON A NATIONAL DIABETES POLICY AND PROGRAM

STATEMENT ON A

NATIONAL DIABETES POLICY AND PROGRAM

It is recommended as a model for chronic disease that the ongoing work of the National Commission on Diabetes (which we have recommended separately should be continued) should include the development of a national diabetes health policy and program as a model for an overall national health policy.

This recommendation is made in the light of the wide range and multiplicity of aspects of health care, teaching and research which must be involved in meeting the needs for an optimal national approach to diabetes, and also in light of the fact that solving this problem -- that is, the development of a national health policy for diabetes -- would be a major, specific step toward solving the more general problem of an overall national health policy.

There are examples already in governmental health efforts in which there is a significant degree of integration of health care, training, and research activities in one agency. These include a number of activities of the National Institute for Mental Health, and more limited activities in these three fields under the National Heart and Lung Institute (for example, dealing with hypertension and coronary artery disease).

Only the outlines for such a national health policy and program for diabetes can be proposed at this time, for clearly the full development would represent a major effort. These outlines are suggested as follows:

1. An office or agency at the level of the Assistant Secretary for Health to develop the policy and oversee the program, including the ability to obtain the necessary participation of elements of other governmental agencies and programs. This office would be advised by the National Commission on Diabetes and consultants.

2. Planning: The development and implementation of model plans for diabetes activities in each of the regional health planning (health systems agency) areas of the nation. Plans would include the provision of adequate patient treatment and educational services, of primary, secondary, and tertiary types, and

the provision of adequate numbers and adequately trained professional personnel to meet the calculated needs for services of people with diabetes in the region.

3. Regional Diabetes Centers: As presented in our recommendations about diabetes centers, each center would serve as a regional resource for biological and health care research, the provision of tertiary care, coordination of services and teaching, data collection, and evaluation. A close interrelationship between these Regional Diabetes Centers and the regional plans for diabetes care referred to above would need to be developed: specifically, the Regional Centers would probably, at least for some time to come, serve several regions of the health systems agency size.

4. Epidemiological data collection, surveillance, and identification of special areas or populations of need: These functions might best be carried out by the Center for Disease Control, as they have proposed, working with the Regional Diabetes Centers as primary bases for data collection and interrelating through the overall office or agency on diabetes with the other aspects of the national program.

5. Research and training activities related to diabetes by other government agencies: The overall office or agency on diabetes would need to identify and stimulate an ongoing basis research and training support related to diabetes in other federal and state agencies, and to be aware of and encourage related efforts in voluntary agencies.

6. Financial support for services needed by people with diabetes: The office or agency on diabetes would need to identify the various types of support already existing for paying for services needed by people with diabetes, including governmental, voluntary and private insurance and similar programs, to identify situations in which lack of payment mechanisms are obstacles to achieving the needed care, and to develop and test alternative ways to provide for payment for needed care not being paid for by other existing sources. In effect, this would be an approach, in a stepwise fashion, to a national policy on health insurance.

7. In the course of its work, the office or agency on diabetes would inevitably face and have to learn how to resolve problems in intergovernmental agency relations as well as relations between the government and the private sector, relating to the specifically identifiable needs in the field of diabetes.

It should be possible to deal with these problems more explicitly and successfully in such a specific field than is possible in the general field of health services, and thus set models and precedents for an approach to general health policy and programs.

Many people have criticized our nation and government for its lack of a national health policy. Despite much exhortation to develop such a policy, most people have been discouraged by the immense complexity of the issues and of existing multitudinous institutions, services, and financing mechanisms. What is suggested here, in summary, is that it should be more feasible to develop a national policy and program around a single area of health need, diabetes (which within its scope requires the participation, in specifically identifiable ways, of essentially all aspects and specialties of health care, training, and research), and that the approach by way of diabetes may be a more successful route to follow in developing an overall national health policy than any other yet undertaken.

APPENDIX F

STATEMENTS ON PATIENT EDUCATION

1. STATEMENT ON THE ROLE AND RESPONSIBILITIES OF HOSPITALS AND OTHER HEALTH CARE INSTITUTIONS IN PERSONAL AND COMMUNITY HEALTH EDUCATION

by the American Hospital Association

Introduction:

The following paragraphs from the AHA's Policy Statement on Provision of Health Services provide a foundation for the statement of health education.

> The system (for the delivery of health services) must be oriented to the maintenance of personal good health and to the prevention of illness rather than being primarily oriented to the treatment of illness after it becomes acute.
>
> The system must include financial incentives for keeping people well and, if they are ill, for making them well as soon as possible.
>
> Every individual shares a responsibility to protect his own health, and proper discharge of the responsibility will reduce the incidence of illness, disease, and injury. In order to encourage individuals to take care of themselves to the maximum extent possible, programs of education to teach people how to exercise this responsibility must be developed, conducted, evaluated, and maintained.

Statement:

Health education is an integral part of high-quality health care. Hospitals and other health care institutions, as focal points of community health care, have an obligation to promote, organize, implement, and evaluate health education programs. As a part of this process, hospitals should plan with other health care institutions and community agencies to define each organization's role and responsibility in meeting the health education needs of the populations they serve.

In order to improve health and health care services, ongoing systems of health education must be planned, implemented, and documented. The maintenance of health and the prevention of disease can be achieved by a cooperative effort between knowledgeable and motivated consumers and health care personnel. Health education is a planned process that entails the joint identification of needs, the exchange of knowledge and concerns, and the clarification of personal responsibilities for health -- all designed to encourage positive health practices and to improve the delivery of health care.

Hospitals and other health care institutions should recognize the opportunity to exercise a role of leadership in the health education of three specific audiences: the patient and his family; personnel, including employees, medical staff, volunteers, and trustees; and the community at large.

The major emphasis of health education is health promotion, which includes health maintenance, disease and trauma management, and the improvement of the health care system and its utilization. Through health education programs, hospitals and other health care institutions can contribute to important health care goals, such as improved quality of patient care, better utilization of outpatient services, fewer admissions and readmissions to inpatient facilities, shorter lengths of stay, and reduced health care costs.

A significant corporate commitment, including staff and financial resources, is essential if hospitals and other health care institutions are to fulfill their leadership role in health education. This commitment involves the acceptance and implementation of health education as an integral component of health care, the designation of specific responsibility for organizing and implementing health education programs, and continuing education. Programs to fulfill this commitment can be developed either independently by hospitals or other health care institutions or through collaboration with health professional groups, consumer groups, health associations concerned with specific diseases, and the educational community.

Financial responsibility for health education that is integral to the treatment and care of the patient is a legitimate part of the cost of caring for the patient. Health education that is designed to maintain the good health of the community at large and to prevent illness should be viewed as a service to the community. Such services are legitimate activities for hospitals and other health care institutions; however, efforts should be made to broaden the base of financial support for them by working collaboratively with other agencies and by seeking funding for health education programs.

2. AMERICAN GROUP PRACTICE ASSOCIATION STATEMENT OF PATIENT EDUCATION

Patient education is the process by which patients and/or those responsible for their care (1) are taught their roles in the maintenance of health and the treatment of disease, and (2) are motivated to carry out their identified responsibilities.

Patient education is an integral part of quality health care.

Effective patient education programs are based upon the needs and resources of both patients and health professionals. They should consist of directed efforts toward achievement of stated goals. Program objectives must also be capable of evaluation.

It is the responsibility of health professionals and the institutions and organizations they represent to establish, maintain, and evaluate such services. Appropriate standards for the quality, delivery, utilization, and costs of such health care services must be established.

Cooperation on the part of the informed patient is also vital. It is recognized that an increase in knowledge does not assure patient cooperation in medical treatment programs. For this reason, it is recommended that educational programs be planned as an integral part of comprehensive health care delivery systems which recognize the informed patient as an essential member of the health care team.

Payment for qualified educational programs appropriate to the health needs of the patient is a legitimate part of the health care costs. Recognizing that community education and preventive information are of immense value, it is recommended that financing of such efforts be more broadly based through the joint efforts of health care institutions, organizations, foundations, and governmental agencies.

3. EXCERPT FROM ADA STATEMENT ON THIRD PARTY PAYMENT

It is RECOMMENDED that the American Diabetes Association adopt the following guidelines for third-party reimbursement for patient education:

1. The goal of patient education programs shall be to improve health of the patient with diabetes through cooperative efforts of informed patients and health professionals.

2. Health professionals caring for the patient with diabetes shall be responsible for establishing, maintaining, and evaluating patient education programs.

3. Patient education service shall consist of planned efforts, with stated goals and objectives, based upon identifiable needs of patients and the resources of the health professionals.

4. Diabetes education shall be provided by a physician or a person under the direction of a physician who is knowledgeable in diabetes and the principles of education of patients.

5. Participation in such programs shall be by prescription of a physician and the educational experience documented in the patient's chart.

6. The American Diabetes Association, as the chief representative of patients and professionals interested in diabetes, should become involved in the establishment of standards for content and mechanisms for ongoing quality control.

4. AMERICAN MEDICAL ASSOCIATION
REPORT OF THE BOARD OF TRUSTEES

Report: F
(A-75)

Subject: Statement of Patient Education
(Resolutions 37 and 41, C-74)

Presented by: Richard E. Palmer, M. D., Chairman

Referred to: Reference Committee D
(Russell S. Fisher, M. D., Chairman)

Resolutions 37 and 41 (C-74) dealing with patient education were referred to the Board of Trustees for study and report at the 1975 Annual Convention.

Both resolutions called for planned programs of patient education developed and supervised by patient education committees whose membership would include health professionals, educators, and consumers. Both would have required that such programs be prescribed by a physician and documented on the patient's charts, as a basis for third-party reimbursement.

The American Medical Association's Department of Health Education and Division of Medical Practice have been exploring the overall subject of planned patient education programs and have arrived at the following general findings and recommendations in response to Resolutions 37 and 41 (C-74).

Definition and Role of Planned Patient Education Programs

It is recognized that increasingly complex patterns of health care, along with the patient's environment, attitude, lifestyle and cooperation, all play an important part in effective treatment. Informed, motivated, and supportive participation in treatment by patients and their families can aid the recovery of the patient and enhance the quality of his health. Patient education, as an integral part of high quality health care, provides an avenue to such improved participation.

Education of the patient has always been part of the ongoing professional responsibility of physicians, nurses, dietitians,

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Past House Action: C-74:310, 313

therapists, and all other members of the health care team. Health professionals have traditionally provided patients with some information about their illness and the prescribed course of treatment. Some health instruction has also been provided. In some situations, there is a need indicated for a structured educational effort beyond that which individual members of the team can provide. It is in these situations that planned patient education programs may be expected to serve.

The provision of patient education services, designed to assist the patient and his family in the effective management of individual health, is a shared and continuous responsibility of both the physician and the patient. Patient education directed toward the effective management of individual illness and maintenance of health commences with the patient's entry into the health services. A positive personal experience between the physician and the patient at first contact will greatly contribute to the success of an effective patient education program.

The following factors define planned patient education:

1) Programs are distinguished from general health education of the public in that they focus on individuals who present themselves for medical services in institutions and in physicians' offices.

2) Programs are directed at the patient's understanding of his specific disease entity or physical or mental disability.

3) Programs assist the patient (and/or sometimes family members) to cooperate in the treatment of the disease or disability.

4) Programs involve patients with disease or disabilities in which there are substantial grounds for belief that the patient will be better able to participate in treatment and that the treatment will be more effective with such a planned program than without it.

It should be clear from these four factors that planned patient education programs are distinct from general health education programs for the public and from programs intended as education for prevention of disease or for health maintenance. The planned program is for patients under treatment.

As the relationship between the physician and the patient is established, the physician determines the patient's level of knowledge

concerning his illness or health, and the patient's educational needs. In this relationship, it is incumbent upon the patient to provide the necessary health history and medical information, and to comply with the prescribed medical regimen. Adherence to a prescribed treatment program is dependent upon the patient's understanding and acceptance of his condition, recognition of the importance of his role in the daily management of his prescribed treatment and satisfaction with health services provided. It is in these areas that a planned patient education program can enhance quality care.

Reimbursement

Planned patient education is a legitimate reimbursable item of patient care, when prescribed by a physician, appropriate to the patient's condition and substantiated by entries on the patient record. Planned patient education should be eligible for reimbursement under the various health insurance and other third-party payment programs.

Benefits

Properly planned programs of this type will improve care and can reduce the overall cost of treatment. Enabling patients to play a greater part in their own treatment can reduce unnecessary utilization of trained health professionals and of health care facilities. However, potential benefits such as cost containment, shortened recovery time and improved patient morale may not be immediately achievable. Any new interdisciplinary program takes time to develop and to become effective.

Content and Organization

Planned patient education programs should be based on identified objectives; should make use of sound educational methods; should have approved content that is scientifically accurate; and should be adaptable to the individual needs of patients.

Objectives need to be clarified at the outset along with specific criteria for measuring their achievement. The success or failure of the program should be determined by how well the objectives are realized.

Recommendations:

The Board of Trustees believes the general findings and recommendations contained in this report respond to Resolutions 37 and 41, and recommends that the report be adopted and Association activities to improve effective patient education be continued.

5. REPORT FROM SUBCOMMITTEE ON HEALTH EDUCATION

to

HEALTH INSURANCE BENEFITS ADVISORY COUNCIL

January 11, 1974

Introduction: The Importance of Defining and Implementing National Policy for Health Education

Consumer health education is an idea whose time has come. This fact is increasingly accepted by consumers and providers, by educators, and third-party payers, by leaders of both public and private sectors.

Underlying this development is the growing recognition that individual lifestyle and individual behavior are major risk-factors influencing the mortality and morbidity of the American people. Heart disease and accidents -- two of our four major killers -- can usually be traced to lifestyle. In the case of stroke, lifestyle is an important contributing factor. It is probably primary in the case of emphysema, cirrhosis and at least two cancers.

It is the primary factor in venereal disease; and primary or contributory with respect to most chronic illness, including obesity, alcoholism, drug abuse, and other addictions, most mental illness, high blood pressure, ulcer, and diabetes.

Even where the primary causal factor of illness is due to heredity, environmental pollution, or some other cause beyond control of the individual, his ability to cope and to lead a reasonably normal life depends on his lifestyle.

The good physician and the good nurse have always recognized the importance of patient education as an integral part of patient care. In recent years, more and more hospitals and community health centers have developed organized patient education programs as part of routine patient care and discharge procedures. Even more recently, some have extended these programs to include outreach to non-patients living in the hospital's community or service area, especially those with addictions and other high-risk factors for coronary and other diseases.

Despite these efforts on the part of individual health professionals and institutions, it is widely believed that a far greater emphasis is needed -- both on education of individual patients and of the community at large. Appointment of the President's Committee on Health Education and the release of its Report in October 1973 are evidence of the growing national commitment to health education.

HIBAC welcomes this Report and acknowledges with appreciation its contribution to definition and development of national policy in this long-neglected area.

HIBAC also notes with approval the demonstration project in hospital based consumer health education currently being conducted by the College of Medicine and Dentistry of New Jersey -- Rutgers Medical School as reported to this Council November 16, 1973.

However, it is clear that health education, as a professional discipline, is still inadequately defined and developed. This is not surprising in view of the fact that the objectives of health education and its relation to the health professions in general are also inadequately defined. If health education is to achieve its potential and accomplish the goals of the President's Committee and the CMDNJ-RMS demonstration project, it must establish itself as an effective component of the health care team with defined goals, and criteria and methodology for evaluation of progress toward these goals. It is too late in the day for the advocates of health education to try to "sell" themselves simply as another well-meaning effort to solve the U.S. "health care crisis."

In the words of the CMDNJ-RMS statement presented to this Council,

> The value of any health education program -- whether a multi-million dollar national program or a single project costing a few hundred dollars -- must ultimately be judged not on the basis of the size of the budget, the number of classes held, pieces of literature distributed or other input data, but in terms of actual consumer behavior modification and outcome as measured by objective indices of health.

The general thrust of a national health education policy, at this time, should be along two complementary lines.

1. Encouragement -- by means of financial, technical, informational, political, moral, and other assistance -- of new programs and demonstration projects, involving both patient education and general

public education, especially in settings where meaningful evaluation can be carried out; and

2. Encouragement -- by the same means -- and insistence on, as a condition of general program support, of training, evaluation, and other activities designed to improve the quality and quantity of personnel available for health education and the quality of programs being offered.

In all respects -- program development, personnel training, and evaluation -- special emphasis must be placed on behavior modification.

Recommendations

In accordance with our instructions from Dr. Saward, Acting Chairman of HIBAC on November 16, the Subcommittee on Health Education addressed itself to two specific issues:

1. Criteria for reimbursement by Medicare and Medicaid of hospital-based patient education; and

2. Implementation of the major recommendations of the President's Committee.

Reimbursement

We have noted with approval the recommendation of the President's Committee:

> That the government, prepayment plans and insurance companies, which pay for health care services to others, be willing to adjust premium rates to include in their payments the cost of health education to the patients involved (Reports, p. 25).

We have also consulted with the staff of the Social Security Administration and the Medical Services Administration and have received the attached letters from Mr. Tierney, Director, Bureau of Health Insurance, Social Security Administration, and Mr. Newman, Commissioner, Medical Services Administration.

With respect to Medicare, the principal points set forth in Mr. Tierney's letter may be summarized as follows:

1. Institutional and home care patient education programs, which are an integral part of the treatment of illness and injury are reimbursable under Medicare;

2. Programs which are purely preventive are not generally reimbursable;

3. Selected programs, which meet the requirements of P.L. 92-603 for experiments in reimbursements, may be funded by SSA on an experimental basis even though they may involve-prevention.

The Subcommittee believes it would also be desirable for Medicare to reimburse for health education programs designed to prevent illness and injury and hence the need for expensive medical and hospital services, however, we recognize the constraints of the present law and, within these constraints, the three points set forth above seem to us to provide a sensible present basis for Medicare reimbursement. In particular, we are pleased that point permits the advocates of health education to conduct additional pilot experiments and to demonstrate health education's potential for greater cost effectiveness.

With respect to Medicaid, in addition to reimbursement for institutions and home care educational programs, there are three other possibilities as indicated in Mr. Newman's letter: for recipients who receive their care through HMO's through OEO neighborhood health centers that are reimbursed on the basis of an all-inclusive rate, or for children reached through the Early & Periodic Screening and Diagnosis Program. In the latter case, the Federal guidelines actively encourage related educational programs.

Recommendation 1. That HIBAC recommend to the Secretary of H.E.W. informational materials incorporating the above points be formulated and made available, as soon as possible, to all appropriate providers and third party intermediaries and carriers;

Recommendation 2. That all appropriate governmental health and insurance departments and agencies, unions, and other consumer representatives be informed of these possibilities so that consumers may be alerted to this service and their entitlement thereto.

President's Committee

We agree with the President's Committee on the need for two specific actions to give immediate visibility and support to health education:

1. Establishment of a new quasi-public National Center for Health Education to be chartered by the Congress but supported by a combination of public and private funds and under the policy direction of a Board representing both the public and private sectors (Report, pp. 22, 28-31).

2. Establishment of a "focal point" within the Department of H.E.W. "to help make the federal government's involvement in health education more effective and more efficient" (Report, p. 24).

We do not support every aspect of the Committee's recommendations with respect to organization of the National Center. We do believe that the concept of a "focal point" needs clarification, probably involving creation of a high-level Office of Consumer Health Education within H.E.W. to be responsible for coordinating and upgrading most of the existing health education programs now scattered throughout the Department.

In general, however, we believe that these two actions -- coupled with more clearly defined reimbursement regulations -- could go a long way toward helping to establish an effective national health education policy.

Recommendation 3. That HIBAC recommend to the Secretary of H.E.W. establishment, as soon as possible, of a high-level Office of Consumer Health Education.

Recommendation 4. That HIBAC recommend to the Secretary of H.E.W. formulation and submission to the Congress, as soon as possible, of legislation authorizing establishment of a National Center for Health Education with supporting funds along the general lines recommended by the President's Committee on Health Education.

Recommendation 5. That this Subcommittee be designated by HIBAC to continue to work with the Secretary and Assistant Secretary for Health and Scientific Affairs, the Director of the Bureau of Health Insurance, the Commissioner of the Medical Services Administration, and other appropriate public and private leaders in the implementation of these recommendations.

Mrs. Anne Somers, Director
Office of Consumer Health Education
College of Medicine and Dentistry
of New Jersey -- Rutgers Medical School
Piscataway, New Jersey 08854

Dear Anne:

This is a statement of our policy we prepared in accordance with your recent discussion with Bob Hoyer concerning Medicare reimbursement for hospital-based consumer health education programs.

While the Medicare law does not specifically identify patient education programs as covered hospital services, our policy is that reimbursement may be made under the program to the extent that the programs are appropriate parts in the rendition of covered service. Covered services must be reasonable and necessary to the treatment of the individual's illness or injury. Working within this framework the program has helped pay the costs of various types of educational activities. For example, under the renal disease provision of the 1972 amendments, reimbursement is made for training necessary to enable patients to dialyze at home. Similarly, educational activities carried out by nurses -- teaching patients to give themselves injections, follow prescribed diets, administer colostomy care, administer medical gases and carry out other patient care activities -- are reimbursable as part of covered nursing care. Similarly, the instruction of a patient in the carrying out of a maintenance program designed for him by a physical therapist is reimbursed as a part of covered physical therapy.

Where, however, the educational activities are not closely related to the care and treatment of the patient, such as programs directed toward instructing patients or the public generally in preventive health care activities, reimbursement cannot be made since the law limits payment under the program to covered care which is reasonable and necessary to the treatment of an illness or injury. For example, programs designed to prevent illness by instructing the general public in the importance of good nutritional habits, exercise regimens, and good hygiene are not reimbursable under the program. I'm sure that no measures are taken, however, to identify and eliminate the cost of an occasional lecture for the benefit of patients, staff, and public on general health matters.

It seems to me there may be some advantage in considering this proposal under the experimentation provisions of Public Law 92-603, which authorizes the Secretary to make payments for services not now covered under either Medicare or Medicaid. If you agree, I recommend that you get in touch with Mr. Ronald H. Carlson, the Director of the Division of Special Operations, which has responsibility for our program experimentation activities in the Bureau. I have already sent him a copy of the material, so he will be familiar with the matter in the event you should call him. He can be reached at area code 301, 594-8000.

Sincerely yours,

Thomas M. Tierney
Director
Bureau of Health Insurance

APPENDIX G

A DEFINITION OF THE VARIOUS LEVELS OF MEDICAL CARE

A DEFINITION OF THE VARIOUS LEVELS OF MEDICAL CARE

Definition of Primary Care. From Physician Scarcity Area Scholarship Program regulations, 42 CFR part 57 subpart W.
Source: 39 Federal Register 28, 7/30, August 9, 1974.

Section 57.2202, Definitions, paragraph j, Primary Care:

> The practice of primary care means the provision of health services characterized by the delivery of first contact medicine, the assumption of longitudinal responsibility for the patient regardless of the presence or absence of disease, and the integration of the physical, psychological and social aspects of health care to the limits of the capability of the practitioner. For purposes of this section, primary care shall include the fields of general practice, family practice, general internal medicine, general pediatrics, and general obstetrics and gynecology.

Definitions of Secondary and Tertiary Care. Source: Division of Medicine, Physician Specialty Distribution: 1975. Second in a series of annual papers from the Bureau of Health Resources Development; dated March 25, 1975.

> _/Secondary care_/ . . . may be defined as a resource to health professionals in the primary (or tertiary) care sector. Patients enter it by referral, having unusual or complex problems which are often diagnostically and therapeutically poorly defined. The knowledge and techniques of the consultant sector are intermediate in generality and breadth. Characteristically, they are oriented to disease process of illness (rather than to health). Secondary care generally involves not only the classically educated specialist but also the subspecialist.
>
> For completeness, tertiary care is defined as a resource to the primary and secondary care sector. Patients enter it by referral, because of the complexity of diagnosis and/or treatment. Tertiary care services are accommodated at the frontier of scientific and therapeutic advancement and are

closely linked to biomedical research and its application. Because of their nature, such services are often regionalized and require specialized equipment or highly specialized teams of health workers. When a distinction is made between primary and specialist care, both secondary and tertiary care are included in the latter category.

DISCRIMINATION PROHIBITED — Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall on the ground of race, color, sex, age, or national origin, be excluded from participation in, be denied the benefit of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Therefore, the National Commission on Diabetes Mellitus, like every program or activity receiving financial assistance from the Department of Health, Education, and Welfare, must be operated in compliance with this law.

DHEW Publication No. (NIH) 76-1024

Report of the

National Commission on Diabetes

to the Congress of the United States

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Volume III

REPORTS OF COMMITTEES, SUBCOMMITTEES, AND WORKGROUPS

Part 5

DIABETES EDUCATION FOR HEALTH PROFESSIONALS, PATIENTS, AND THE PUBLIC

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
National Institutes of Health

"The National Diabetes Mellitus Research and Education Act" (Public Law 93-354), signed by the President on July 23, 1974, directed the appointment of a National Commission on Diabetes whose charge was to formulate a long-range plan of research and education to combat diabetes mellitus. The Commission submitted its report to Congress on December 10, 1975.

REPORT OF THE NATIONAL COMMISSION ON DIABETES

Volume I - The Long-Range Plan to Combat Diabetes

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- Part 1 - Public Testimony (Public Hearings 1-5)
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- Part 1 - Scope and Impact of Diabetes (I)
- Part 2 - Scope and Impact of Diabetes (II)
- Part 3 - Etiology and Pathology of Diabetes
- Part 4 - Treatment of Diabetes
- Part 5 - Diabetes Education for Health Professionals, Patients, and the Public
- Part 6 - Workgroup Reports
  - A. Diabetes Research and Training Centers
  - B. Veterans Administration Programs for Diabetes
  - C. Center for Disease Control: Diabetes Control Programs
  - D. National System for Diabetes Data Resources
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Volume IV - Supporting Materials to the Commission Reports

- A. Summary of Federal Health Legislation Pertaining to Diabetes
- B. Summary of Diabetes Program Funding
- C. Special Reports

Report of the
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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
National Institutes of Health
DHEW Publication No. (NIH) 76-1031

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VOLUME III

REPORTS OF THE COMMITTEES, SUBCOMMITTEES, AND WORKGROUPS

PART 5

Report of the Committee on Education

Report of the

COMMITTEE ON EDUCATION

to the

NATIONAL COMMISSION ON DIABETES

Chairman:

Lillian Haddock-Suzrez, M.D.

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of the

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PREFACE

The Committee on Education of the National Commission on Diabetes worked intensively during the months of July, August, September, and October so as to review thoroughly the state of the art regarding education on diabetes, and to prepare a set of recommendations which would respond to the present needs. In doing so, questionnaires were sent to medical schools, professional societies, voluntary organizations, and to the affiliates of the American Diabetes Association. The testimonies in six public hearings gave us a clear view of what the needs of the health professionals, the patient, and the public are regarding education and treatment.

The final report consists of three parts: the first reviews the state of the art and outlines the recommendations and the approaches to be used to fulfill these recommendations; the second reviews the current efforts and resources; and the third details the specific projects recommended.

The Commission is indebted to all of our consultants who worked with enthusiasm and dedication in order to produce a report which attempts to provide an answer to the needs in education regarding diabetes in the community in general.

Lillian Haddock-Suarez, M.D.
Member, National Commission on Diabetes
Chairman, Committee on Education

I. INTRODUCTION

The National Commission on Diabetes charged the Committee on Education to "develop an educational plan for health professionals, the patient, and the public so as to contribute to improvement of the care and quality of life of the diabetic patient." In meeting its charge, the Committee reviewed much of the available literature on treatment and education in diabetes mellitus, transcripts from some of the public hearings on diabetes, and workgroup deliberations by concerned and interested experts in the fields of diabetes, nutrition, education, communication, psychology, evaluation, and health care delivery.

The following set of assumptions guided the Committee in its attempt to assess needs and develop goals, objectives, and recommendations for a coherent and comprehensive program of professional, patient, and public education in the area of diabetes mellitus.

1. Individuals should receive a level of health care suitable to their physical needs and psychological well-being.

2. Education of the patient is an integral part of the delivery of health care to diabetic patients.

3. Health education lowers health resource utilization such as emergency room clinic visits and hospital beds which results in a reduction in total health care cost.

A. GOALS OF THE DIABETES EDUCATION COMMITTEE.

The ultimate goal of diabetes education is to improve the care and quality of life of the diabetic patient in its broadest sense. In keeping with this theme, we submit the following goals for diabetes education:

1. To ensure that every diabetic patient and his family are given adequate education as part of his/her therapy in order to help the patient with diabetes live with his/her disease and assume an active role in his/her care.

2. To improve the knowledge, skills, and attitudes of the health professionals who deliver the health care of the diabetic patient and to generate new manpower to care for and manage the patient with diabetes.

3. To ensure an adequate level of public knowledge concerning diabetes so that the public will have a functional understanding of diabetes and appreciate the impact of diabetes as a health problem.

B. OBJECTIVES OF THE DIABETES EDUCATION COMMITTEE.

As a result of its charge and consistent with its goals, the Committee on Education identified the following broad objectives on which to base recommendations.

1. To provide health professionals with the necessary knowledge and skills, and to positively influence their attitude, to effectively care for the patient with diabetes.

2. To generate adequate numbers of health professionals specifically interested in diabetes.

3. To ensure that every diabetic patient is given adequate education as part of his/her therapy.

4. To ensure an adequate level of knowledge concerning diabetes among the family of the diabetic patient.

5. To ensure that educational approaches are tailored to the individual needs of the diabetic.

6. To ensure an adequate level of public knowledge concerning diabetes as a health problem.

II. SUMMARY OF RECOMMENDATIONS

In keeping with our intent to help the patient with diabetes live with his disease and assume an active role in his care, we subscribe to the premise that education of the diabetic patient is an integral part of the delivery of health care. To fulfill the educational needs of the professional, the patient, and the public, the Committee on Education proposes to:

1. Improve the knowledge skills and attitudes of the health professionals to provide effective care for the patient with diabetes mellitus.

2. Increase the number and utilization of health professionals specifically interested in diabetes.

3. Develop effective professional educational materials tailored to the needs of the various professional groups.

4. Develop appropriate teaching materials tailored to the individual needs of the diabetic patient.

5. Encourage and develop a coordinated professional team approach to diabetic patient education.

6. Initiate research programs to identify and deal with socio-emotional variables in patient education.

7. Evaluate the effects of education on diabetic patient behavior and self-management.

8. Develop and evaluate educational materials and programs for the general non-professional public and for "special publics" who relate to diabetic patients.

In order to develop guidelines for an effective education effort designed to reach professional, patient, and public target groups, the Committee has concluded that the effort should:

- Utilize a wide variety of communication strategies and channels taking into account age and cultural differences.

- Utilize specific information designed to change the behavior or health actions of professionals, patients, and the public.

- Utilize information to clarify and correct misinformation and/or misconcepts held by the public concerning diabetes.

- Utilize accurate information for widespread dissemination as a part of a national effort.

III. CONSIDERATION OF PROFESSIONAL EDUCATION

A. INTRODUCTION AND SUMMARY OF PROBLEM AREAS.

The Workgroup on Professional Education, after careful analysis of the broad subject, concluded that there are three major areas of consideration. These relate to cognitive and attitudinal factors, personnel and materials. Furthermore, the problems are quantitative, qualitative, or distributive in nature. In summary the problem areas are:

1. The knowledge, skills and attitudes of health professionals who deliver health care to the patient with diabetes are inadequate.

2. There is a shortage of health manpower specifically interested in diabetes.

3. There is a shortage of professional educational materials tailored to the needs of the various professional groups.

B. DISCUSSION OF PROBLEM AREAS.

The following discussion will dissect and amplify each of these elements.

1. The knowledge, skills, and attitudes of the health professionals who deliver the health care to the patient with diabetes are inadequate. The patient's knowledge and self management are ultimately associated with the knowledge, skills, and attitudes of health professionals.

The vast majority of diabetic patients in the United States receive their care from primary physicians (1). The usual care is mainly directed toward crisis care; and very little time and effort are devoted to the preventive aspects of diabetes control, to education, to career planning, to genetic counseling and family planning, and the many aspects of the total life and health experience of the diabetic patient and his family.

The physicians, nurses and dietitians who should be teaching diabetic patients in their various contacts with them are often less than adequately informed about diabetes themselves (2). Etzwiler (3) found large gaps in basic knowledge about diabetes among senior nursing students, with less than half possessing a basic understanding of diabetic dietary principles, and also among physicians, who are often apparently unaware of the correct follow-up needed for elevated blood sugars in diabetes detection drives.

With respect to the knowledge of the nurse, the staff of the Diabetes Project of the North Carolina Regional Medical Program pre-tested a large number of staff nurses before conducting educational programs and found that scores ranged from 17% to 100% (average score of approximately 68%) on material which was considered to be extremely basic information about diabetes (4).

Dietary management is generally considered to be basic to the day-to-day control of diabetes, to weight control, and to the long-term nutritional well-being of the person with diabetes. Because the required dietary modifications usually impose major changes in long-established eating habits and lifestyle, as well as learning new concepts about composition of food, individualized diet counseling is basic to successful diabetes management and is currently agreed to be a cornerstone of diabetes patient care and education. The physician and dietitian-nutritionist should be the professionals with the expertise and sensitivity to provide meaningful education and motivation in this area (5).

Although studies have not been conducted to assess the knowledge and skills of physicians and dietitians as they relate to nutritional needs of the diabetic patient, indirect evidence suggested by patient studies indicate that professionals lack the knowledge and skills to adequately inform the patient about the importance of nutrition in the self-management of diabetes (6). For instance, 22% of the respondents in one survey said that they were not given a diet and 25% said that they were given a diet but did not follow it. Of the 77% of respondents who reported receiving a diet, only about three fourths said that they had been taught how to use it while only 53% of the total sample said that they followed their diet (7).

These gaps in knowledge may lead to attitudes on the part of health professionals which may, directly and indirectly, result in apathy, anxiety, depression, insecurity, confusion, and disorganization in the diabetic patient's lifestyle.

There is evidence that physicians' attitudes about diabetes have underestimated the importance of patient education ("All I want my patient to know is my telephone number.") (8), the need for application of the principles of preventive medicine to diabetes, and the detrimental relationship between emotional problems and diabetes control (9). Inappropriate attitudes have also been demonstrated by physicians in industrial medical departments and physicians on state motor vehicle department review panels as to the capacity of diabetics as employees and as motor vehicle operators. For example, the diabetic patient has been likened to the epileptic in terms of dangers to self or others (10). It is unknown at what point in time or what factors are operative in the development of counter-productive professional attitudes, but lack of knowledge may be basic and contributory.

Attempts have been made to overcome the knowledge gaps of the various health professionals regarding diabetes mellitus through continuing professional education courses given throughout the United States. For example, the AMA reports that in 1975-76 nearly 4,862 courses in CME will be given in the United States. However, only 29 CME programs (.06%) on diabetes mellitus are scheduled. If we assume that diabetes is the second leading health problem in the nation, very little opportunity is being offered to the practicing physician to remain abreast of newer concepts regarding the diagnosis and management of diabetes.

The Workgroup sent a questionnaire to all state medical societies, professional medical organizations, and voluntary health agencies to obtain information regarding topics on diabetes mellitus being offered in the continuing professional education courses. The limited response to this questionnaire suggested that there are a number of state medical societies that do not offer continuing medical education programs. Most of the efforts in professional continuing medical education on diabetes mellitus are conducted under the auspices of the ADA or American Association of Diabetes Educators. Several professional societies regularly include topics on diabetes mellitus in their continuing medical education programs. They include the American College of Physicians, the Endocrine Society and the American Academy of Family Physicians.

A limited number of state departments of health conduct professional education programs. Such programs are being conducted by the New Jersey and the Puerto Rico Departments of Health. As a result of the direct involvement of physicians in diabetes case finding and public education programs, a demand from all health professionals (including physicians, nurses, dietitians, and others) for new knowledge and scientific information arose. As a result, numerous symposia, conferences, and courses in diabetes for professionals were implemented by the New Jersey State Department of Health and the Puerto Rico Diabetes State Program.

While numerous courses are given for the professional, no systematic evaluation of the impact of the programs on patient behavior and the subsequent patient care have been attempted. A good CME program is often defined as one that brings substantial income to the sponsoring institution or one in which large numbers of individuals enroll. Appropriate educational evaluation strategies have not been developed.

Educational programs on diabetes, sponsored by universities, medical societies, state health departments, the ADA and others, tend to be skewed toward the presentation of complex cellular concepts and research studies at the expense of down-to-earth practical concepts which will permit the primary physician to afford better care to patients with diabetes. Courses tend to compete with each other for the same audiences and lay claim mainly to their eligibility for continuing medical education credits by the AMA.

Because the quality of the diabetic patient's life and health is related to his skills and knowledge of the disease and those self-management procedures which are responsible for the level of diabetes control and the prevention of acute complications on a day by day basis, there is an acute need to provide physicians and the allied health professionals with the minimum essential knowledge and skills about diabetes, its treatment, its complications, and the prevention of some of its acute complications.

The Workgroup was also concerned about the teaching on diabetes mellitus and related endocrine disorders in medical training. In this regard a questionnaire was sent to all medical schools in an attempt to define the curriculum being offered in diabetes and related endocrine disorders. The response was very poor as 18 divisions of endocrinology responded out of 115 medical schools. From the limited responses, we can say that every medical school has its own general curriculum, some of which are integrated, but that in the majority they appear to have fragmented or unidentifiable instruction on diabetes per se in the curriculum.

The Workgroup was also concerned about the teaching on diabetes mellitus in nursing schools. Undergraduate nursing education is now changing from a primarily hospital-based diploma training to education provided by institutions of higher education. As this change has come about, many different types and forms of curricula have evolved. Many have content which is interwoven into the curriculum in such a way that it would be a monumental task to determine exactly what is being taught throughout the country in specific content areas, and a study to attempt to determine this would probably yield ineffective results. It is also recognized that professional education on the undergraduate level must of necessity be of a somewhat general nature emphasizing the principles and theories underlying the functions of the profession. The same applies to other professional schools.

2. <u>There is a shortage of health manpower specifically interested in diabetes</u>. The need for health manpower has been a topic of paramount interest to legislators and health educators, especially in light of the possibility of legislation creating a national health insurance plan.

Initially, it was thought that the "health care crisis" could be solved by simply increasing the number of physicians. However, this has turned out not to be the case. It is becoming obvious that the major problems in physician manpower are maldistribution and over-production of specialists. Inappropriate distribution has led to a sparsity of physicians in rural areas and in the inner city. Also, there is good evidence to suggest that there is an over-production of surgeons and/or medical subspecialists such as cardiologists (13, 14). Since the

majority of diabetic patients receive care from primary care physicians, one must conclude that the problems of maldistribution and overproduction of specialists have contributed to the ineffectiveness of the care of the diabetic patient (1).

An examination of the regional distribution of 1974 membership of the American Diabetes Association suggests that there is indeed a maldistribution of physicians specifically interested in diabetes. For instance, out of 2,363 professional members of the ADA, only 15 members could be accounted for in the five states of Wyoming, Montana, Idaho, South Dakota, and North Dakota (15). Using a prevalence rate of 2.5% for diabetes, these 15 physicians would be responsible for the care of nearly 70,000 diabetic patients. This would be a diabetic specialist/diabetes patient ratio of 1 in 4,660. In California, in which 209 physicians are registered with the ADA, the diabetic specialist/diabetic patient ratio is 1 per 2,000 patients (16). This represents only a rough approximation of the impact that maldistribution has on diabetic care. The data must be qualified because not all endocrinologists are members of the ADA nor are all of its professional members subspecialists in diabetes and endocrinology and practicing physicians. However, the data does suggest that maldistribution of physician manpower may play a significant role in delivery of inadequate health care to the diabetic patient. Other data that can be examined has been collated by Felts of Vanderbilt University (17). In an attempt to make an estimate of the current diabetes manpower situation in 1973, he reviewed the census of the American Medical Association, the registry list of physicians of the American College of Physicians, the membership of the American Diabetes Association, the Endocrine Society, and the number of Diplomates of the American Board of Endocrinology and Diabetes. His figures indicate that there were at that time approximately 2,000 experts in diabetes for the country's estimated 5,000,000 diabetic patients (one diabetes expert per 2,500 diabetic patients).

Regarding dietetic manpower at the present time in the United States, there are approximately 6,000 clinical dietitians and nutritionists who spend an estimated 10% of their time in the teaching of diabetic patients. This represents the equivalent of only 600 full-time diabetes-teaching nutritionists in the entire country (5).

There is no available information on the number of nurses who regularly devote a major portion of their workday to diabetes instruction. Nurse-care and nurse-instruction of diabetics is thought to be interspersed among other general nursing duties, while only an insignificant number of diabetes nurse specialists exist (18).

These examples tend to show that there is a shortage of qualified manpower interested in diabetes.

3. There is a shortage of professional educational materials tailored to the needs of the various professional groups. Aside from standard textbooks, there is a shortage of practical, updated educational material on diabetes for professionals. This includes books, pamphlets, audio and audio-visual materials, and slides. The available materials tend to be aimed at a single level of professional competence and are thus unsuitable for family practitioners and internists, diabetes specialists, endocrinologists, nurses, nutritionists, social workers, and others. The same complaint pertains to specialty medical journals, whose manuscripts generally relate to research results with little practical clinical material for the physician or nurse. It is essential that health professionals themselves become prepared to teach the patients and have suitable materials to assist them. Toward this end, the Committee on Patient Education Centers and Systems of the American Diabetes Association is sponsoring the preparation of a "Handbook on the Education of the Diabetic Patient" by experts in this field in the United States and Canada (2).

Although it is estimated that three million dollars is being spent annually for professional education by five major drug firms, the impact of the educational materials, prepared under these auspices, on the practitioner's skills and knowledge or in patient care has not been evaluated.

C. FUTURE DIRECTIONS.

Having identified these problem areas, namely need for education of professionals, shortage of manpower, and lack of appropriate educational materials, the Workgroup on Professional Education outlined the following specific objectives and approaches:

1. Improve the knowledge, skills, and attitudes of the health professionals to provide effective care for the patient with diabetes mellitus.

    a. Objectives for medical profession: medical students, physicians in training, physicians training in endocrinology and diabetes, specialists and subspecialists.

        1) Design continuing medical education courses in diabetes which will attempt to assure the competence of physicians to treat diabetic patients:

            a) Offer courses on diabetes for all health professionals in the Diabetes Research and Education Center;

b) Increase the courses of continuing medical education offered by the ADA and its affiliates, and by other voluntary and professional societies;

c) Encourage medical schools to play a paramount role in the CME of health professionals;

d) Develop educational materials in a coordinated effort (ADA, media, industry), following educational principles and including a self-assessment.

2) Attempt to positively influence the practicing physician's attitude concerning diabetes:

Collect data as to attitudes by personal, telephone, or mail interview by skilled professional representatives (Opinion Research Corporation, Response Analysis, Gallup poll or others)

3) Evaluate the practicing physician's knowledge of diabetes in order to assess educational needs and to plan specific programs of continuing medical education:

Examine a sample of practicing physicians to determine their knowledge and skills regarding diabetes, including diagnosis, preventive medical, and acute crisis management, and the treatment of the long-term complications.

4) Assure that physicians training in either clinical endocrinology or diabetes are provided with adequate training in both fields:

Assure a broad exposure of the trainee to patients with diabetes and endocrine disorders to include adult endocrinology, pediatric endocrinology, and reproductive endocrinology.

5) Assess the knowledge, skills, and attitudes that physicians in training (apart from those in the subspecialty training) have regarding diabetes at the beginning of their training and then establish minimal standards of attainment:

a) Give a pre-test to ascertain the knowledge, skills, and attitudes which the physician in training has at the beginning of his/her training;

b) Identify the content about diabetes and related endocrine disorders in the ECMFG, the second and third part of the National Boards and the Flex;

c) Recommend that certifying Boards and agencies include in their examinations that minimum number of questions which may help assess the knowledge the physician has in diabetes and related disorders.

d) Each specialty and subspecialty board should organize a committee which will define which are the concepts, attitudes, and skills in which the physician in training must be highly competent and aware of. This committee must also define the attitudinal objectives (example: Guidelines to the Content of Pediatric Residency: A Theoretical Model with Practical Implications. Deacon, J. R., Mager, T. C., Tracy, P. C., Wisconsin School of Medicine and Chapter of the American Academy of Pediatrics). In this committee, members of the house staff of the nation should be represented.

e) In the effort above the American Diabetes Association and Endocrine Society should have some input in the elaboration of the concepts, skills, and attitudes that the physician in training must have regarding this field.

6) Identify a core curriculum for diabetes and related endocrine disorders to be used in the teaching of this discipline in the basic and clinical sciences in medical school:

a) Assemble a group of experts for the purpose of designing a curriculum model;

b) Share the curriculum model with the curriculum committee of each medical school;

c) Once designed, test and evaluate this curriculum model.

b. Objectives for nursing profession: Provide all nurses who care for diabetic patients with the opportunity to increase their knowledge and skill.

1) Assemble a network of nurse educators/consultants who will provide continuing education and consultation in

diabetic care using the Diabetes Research and Training Centers and the university schools of nursing within the geographic area for which they are responsible as base of operations;

2) Develop guidelines for care of the diabetic patient by the nursing profession;

3) Devise and develop instructional materials for use in educating diabetes nurse specialists and other nurses involved in the care of the diabetic patient;

4) Set standards for minimal essentials in knowledge and skills in diabetes content in undergraduate curricula.

c. Objectives for dietetic profession: Improve the knowledge, skills, and attitudes of the dietetic students, practicing dietitians, nutritionists, food service managers, and personnel.

1) Design continuing education courses to further strengthen the knowledge, skills, and attitudes of the dietitian/nutritionist in extending quality health care to the patient with diabetes in hospital, ambulatory, and community care;

2) Attempt to positively influence the dietitian's attitudes concerning dietetic instruction for the patient with diabetes;

3) Incorporate the unique knowledge, skills, and competence of the dietitian into the research, education, and treatment team in the Diabetes Research and Training Center;

4) Prepare multimedia learning modules for practicing dietitians on nutrition assessment, nutrition counseling, education, and behavioral modification for persons with diabetes and their families;

5) Coordinate the preparation of articles, programs, audiotapes, and sample menus, coordinated with standardized small quantity recipes suitable for diet based in the meal plan and exchange lists currently used in diabetes patient education;

6) Design a core curriculum in diabetes and endocrinology for the undergraduate student in dietetics and nutrition adapted from the core curriculum for medical students.

d. Objectives for other allied health professionals: Provide funds to educational institutions for supporting efforts in developing, implementing, and evaluating curricula models. As a minimum the following model types should be funded:

1) Decentralized course content in diabetes-appropriate content covered during courses in anatomy, physiology, pharmacology, pathophysiology, physical assessment, and management;

2) Use of clinical education facilities for exposure of students to diabetic patients;

3) Use of teaching simulation aids to augment and/or replace portions of the clinical education experience;

4) Use of diabetic camps for exposure of students to diabetic patients;

5) Variable length and type of education psychology and human behavior course content in curricula;

6) Continuing education models for urban, suburban, and rural environments;

7) Curricula stressing the health care team concept;

8) Graduate or certificate level programs with concentrated course content in diabetes. This model would produce a specialist in diabetes;

9) Teaching simulation models must be developed and evaluated, i.e., audio-visual role playing sessions, blood sugar status indicator device, self-instructional packages;

10) Examination materials for evaluating the knowledge and behavioral skills of allied health professionals at the basic and specialist levels need to be identified;

11) Funds should be available to support a curriculum coordinator and a research/evaluation specialist for each curriculum model project, simulation aids for appropriate projects, office equipment and supplies, travel and secretarial support, and support of continuing education programs;

12) Through workshops there must be coordination between projects to ensure appropriate controls in the research/evaluation activities so that results can be compared between institutions. The result of these projects should have institution independence application.

e. Objective for professional social workers: Develop standards in the care of the chronically ill by the social workers.

2. Generate adequate numbers of health professionals specifically interested in diabetes.

a. Medical profession: Create student and postgraduate research and clinical fellowship programs in diabetes and related endocrine disorders.

1) Increase student research fellowship programs. Funds should be provided to those institutions which are conducting the finest research with specific goals to unveil the cause of diabetes and its complications;

2) Increase the Institutional National Research Science Awards, the individual research fellowships and the Individual National Research Science Award provided by the National Institutes of Health in diabetes and related endocrine disorders;

3) Create university administered clinical fellowships to suit the needs of those students who are interested in the clinical practice of medicine. Funds should be allocated to comprehensive outreach educational programs in diabetes and related endocrine disorders where the student will be educated in the delivery of ambulatory care, and in the use of health care teams (use programs which have been developed considering primarily the patient needs and the needs of the community);

4) Provide funds for the training of specialists in diabetes and related endocrine disorders on a scholarship basis for those candidates interested in a purely clinical career. These funds should be provided by the hospital administrations, state departments of health, Health Resources Administration, and other agencies. These specialists should serve in the area specified by the funding agency for a time equivalent to that in which provision of funds were made available for this clinical training;

5) Provide combined funds for candidates who want to follow a combined clinical and research career. All physicians in specialty training should have a clinical year of training in which they should become competent in the broad field of endocrinology and diabetes.

b. Nursing profession: To increase the number of nurses specializing in diabetic care and to assure a minimum degree of competence by these nurses.

1) Provide funds for developing diabetes teaching programs in primary care settings;

2) Increase the number of nurses prepared at the graduate level with a specialty in diabetes and endocrinology;

3) Develop standards for certification of nurse specialists to include diabetes teaching nurses, diabetes nurse practitioners, and diabetes nurse educators;

4) Develop standards for programs designed by schools of nursing and other institutions of higher learning who feel they can offer the advanced education to registered nurses to provide them with the skills and knowledge to become advanced practitioners/clinical specialists in the area of diabetes and endocrinology;

5) Develop a system for approving courses for nurse specialists. This would provide a mechanism for institutions to have their programs approved so that they would be more attractive to students looking for such an education and guarantee a certain level of quality.

c. Dietetic profession: Generate sufficient numbers of dietetic personnel to educate the patients with diabetes.

1) Generate sufficient dietetic manpower through better utilization of existing dietitians and nutritionists;

2) Support advanced training of faculty for education of dietetic personnel in clinical and community dietetics;

3) Establish small number of research and clinical traineeships for advanced in-depth study to prepare dietitians and faculty for the Diabetes Research and Training Centers;

d. Assess the diabetes manpower.

1) Medical profession: Identify the practicing physicians specialized in diabetes and endocrinology and prepare rosters of adult and pediatric endocrinologists interested in diabetes for use by funding and service agencies.

2) Other professionals:

a) Identify the diabetes nurse specialists, diabetes nurse educators, and diabetes nurse practitioners;

b) Identify the dietitians/nutritionists with expertise in the nutrition counseling of the diabetic;

c) Identify social workers, physician assistants, and other personnel with expertise in the care of the diabetic patient.

3. Develop effective professional educational material tailored to the needs of the various professional groups.

REFERENCES

1. Krall, Leo,M.D., Testimony Presented Before the National Commission on Diabetes, P hiladelphia, Pennsylvania, May 1, 1975.

2. T. F. Williams, M.D., The Need for Diabetes Education (See appendix 15).

3. Etzwiler, D.C., Who's Teaching the Diabetic? Diabetes. 16:111-7, 1967.

4. Data from the Project Files, Diabetes Consultation and Education Service of the North Carolina Regional Medical Program.

5. Turner, D. and Kauffman, M., Professional Education - Dietetic Personnel, (See appendix 9).

6. West, Kelly M., Diet Therapy of Diabetes: An Analysis of Failure, Ann Intern Med 79:425-434, 1973.

7. Holland, William M., The Diabetes Supplement of the National Health Survey, III. The Patient Reports on His Diet, JADA, May 1968, 52: 388-389, 390.

8. Krosnick, A., Diabetes Control: A Review Course for Physicians, U.S. Industries, Inc., 1966.

9. Krosnick, A., Industries, Inc., 1966, Comprehensive Diabetes Control Project, PHS. Contract No. 108-66-213 (P), Unpublished Data, 1968.

10. Gombosi, E. A., Personal Communication, N. J. Dir. of Motor Vehicles.

11. Krosnick, Arthur, M.D., Diabetes Programs in New Jersey, (See appendix 4b).

12. Haddock, Lillian, and Robles, Tanis A.,Unpublished data, Diabetes in the Field.

13. Petersdorf, R.G., Health Manpower: Numbers, Distribution, Quality, Ann Intern Med 82, 694-705, 1975.

14. Stimmel, B., The Congressional Health Manpower: A Legislative Morass, N Engl J. Med 293, 68-74, 1975.

15. 1974 Directory of Professional Membership, American Diabetes Association.

16. Distribution of Physicians in the U.S., AMA, 1973.

17. Felts, P., Estimates of Current Diabetes Manpower, Personal Communication.

18. Lawrence, P. and Christman, B., Professional Education - Nurses, (See appendix 10).

19. Miller, L., Evaluation of Patient Education: Los Angeles County Hospital Experience, (See Appendix 12).

20. Davidson, J . K., et al., Assessment of Program Effectiveness at Grady Memorial Hospital, (See Appendix 7).

21. Runyan, J. W., Decentralized Medical Care of Chronic Disease, Trans. Assoc. Am. Phy. 86, 237-244, 1973.

22. Komaroff, O. L., Black, L., Flatby, M., Knopp, R. H., Reiffen, B., and Sherman, D. E. E., Protocols for Physician Assistants, Management of Diabetes and Hypertension, N Engl J Med 290, 307-312, 1974.

IV. CONSIDERATION OF PATIENT AND PUBLIC EDUCATION

Treatment and patient education can be thought of in synonymous terms. Education of the diabetic is a vital and preliminary step in adequate treatment of diabetes. Education of the diabetic patient or family begins when the doctor makes the diagnosis of diabetes. Immediately the patient wants to know: What is diabetes? How will it affect my life? What can I do about it? A thorough understanding of diabetes and current management for its control must be imparted to the patient by the doctor or other health professionals working with him. This is particularly true of diabetes since the patient himself plays such a critical role in his care (1, 2).

Although most physicians caring for diabetic patients recognize the need for education, few have the time or resources to offer optimal and adequate education. Many are inadequately trained themselves, especially in home management of diabetes (1, 2). The patient who recognizes the importance of understanding his disease seeks knowledge from books, pamphlets, etc., which only whet the appetite, but do not help the patient live comfortably with diabetes (1). Attempts to educate the general public about the nature and enormity of diabetes as a health problem have met with a modicum of success, but the average man on the street is still relatively oblivious to diabetes.

Deficiencies of knowledge and/or understanding of the nature and management of diabetes are evident at every level. Inadequate training of health professionals leads to incomplete or inaccurate management of the diabetic patient (1, 2). Lack of patient understanding leads to lack of control of the disease which reaps a harvest of ill health and probably results in earlier incapacity from disease complications which are to some extent preventable (3). Lack of understanding by the public may lead to failure to recognize diabetes, its limitations, and/or effects on fellow citizens.

A. SUMMARY OF PROBLEM AREAS IN PATIENT AND PUBLIC EDUCATION.

Problem areas identified in PATIENT EDUCATION:

1. Diabetic patients do not receive adequate education as part of their initial treatment or home management.

2. Inadequate education of the diabetic patient compounds the psychological problems and seriously affects the lifestyle of the individual.

3. Persons with diabetes who also have physical complications receive inadequate education.

4. Persons with diabetes who also have language difficulties and special ethnic needs fail to receive adequate education.

5. Persons with diabetes who also have learning disabilities fail to receive adequate education.

6. Needs of the person with diabetes at different ages (e.g. infant, children, adolescent, young adult, aged) are not adequately recognized and provided for.

Problem areas identified in PUBLIC EDUCATION:

1. Public awareness of diabetes as a health problem is inadequate.

2. Misunderstanding and/or misconception of diabetes by segments of the public leads to incorrect or discriminatory handling of persons with diabetes.

B. DISCUSSION OF PROBLEMS IN PATIENT EDUCATION.

1. Diabetic patients do not receive adequate education as part of their initial treatment or home (continuing) management.

It is of critical importance in a discussion of the significance of patient education in the treatment of diabetes that it be understood that education is not simply a desirable adjunct to treatment, but rather, as has been repeatedly noted in the journal literature and explicitly stated by Etzwiler, "Education of the patient and his family is an essential part of the management of a diabetic..." (3). Etzwiler has also well summarized the inclusive, day to day, importance of good education for the person with diabetes:

> Diabetes mellitus is a chronic disease that at the present time cannot be cured but can be controlled. Optimum control offers the promise of an increased life expectancy with a minimum of medical complications. To achieve this the patient must have a thorough comprehension of the disease and be willing to cooperate closely with the physician. Few other diseases place as much medical responsibility upon the patient. The diabetic must test his urine, choose his diet, regulate his physical activities, give his own injections, and even adjust his daily

> insulin dosage. Thus he acts as his own technician, dietician, nurse, and physician. Ideally such responsibility should be delegated to a patient only after he understands the nature of diabetes and the care that is required (3).

Further support for the importance of patient education is readily and extensively available in the pertinent literature (4-16). It should be emphasized in this regard that, particularly for the person with diabetes, patient education is of critical importance and can quite literally be a matter of life or death (2, 7, 11).

The education which is required should certainly begin in the hospital and it is reasonable to assume that good medical care of every patient with diabetes, regardless of the reason for the admission, must include education in self-care. The administrative and professional staff should bear the responsibility for accomplishing this because the minimum standards of patient care in the hospital require patient education as a necessary and integral aspect of the total therapy (10). However, the nature of diabetes and its effective treatment are such that patient education must also be constant and continuing. It is evident to those involved in the treatment of diabetes that patients show a rapid decline in information retained and in adherence to therapeutic plans if the patient is only offered isolated educational experiences. It is further evident that even with regular patient education it should never be assumed that the person has an adequate understanding of his condition (10, 12). Increase in age and changing patterns of life necessitate further, and different, education and understanding.

In this regard the needs of the juvenile diabetic patient are particularly significant. In order to properly instruct children with diabetes the educational program must be tailored to the particular needs of the individual and adapted to the age, abilities, and experiences of the child. The program must be progressive so that each year the child learns more about his disease, commensurate with his life situation, thereby enabling the child to assume greater responsibility for his own therapy, leading ultimately to the goal of self-care. Obviously, if this goal is to be achieved, the juvenile diabetic patient must have an adequate understanding of the basic nature of the disease (3).

It should be apparent from the above that patient education is of extreme importance in the treatment of diabetes and that education must occur not only at the time of diagnosis but as an ongoing and essential part of the person's therapy. However it is quite evident that the existing education is very inadequate.

A survey by Ames Company of 2,100 hospitals in the U.S.A. reported that only 20% had what they termed a "formal" patient education

program for diabetic patients and only 7% had a person devoted full time to the program. Of interest is the fact that in only 5% of these hospitals did the patient pay for the Diabetes Education Program (4).

A similar survey was conducted by Etzwiler in 26 hospitals in the Minneapolis-St. Paul area. The results revealed that while all the administrators of the 26 institutions professed the availability of educational programs for their patients, only 12 could identify a specific person in charge of the programs and only 15 of the hospitals had purchased any educational materials in the preceding year (31).

In a survey conducted by Colwell for the ADA Committee on Education Centers and Systems, 32 diabetes education centers could be identified. It was estimated that these 32 centers could serve about 42,500 patients per year, less than 1/200 of the known diabetic patients in the United States (32).

A lack of training in the life-threatening aspects of diabetes often leads to a refusal to accept the reality of the disease and thus the patient may not adequately protect himself against acute complications, resulting in unnecessary morbidity and re-hospitalization, and, at times, mortality from diabetes (33-35).

Persons with diabetes who are poorly trained in ambulatory (home) management of their disease generally do not care for themselves adequately (9, 12, 13). As a result of this, they suffer increased morbidity, require more frequent use of medical facilities and manpower, and suffer earlier and more intense rates of chronic complications which lead to social and economic hardships to the individual and to society (33, 35). There are, of course, many reasons for inadequate ambulatory care. Primary among these are the unavailability of a team of allied health professionals, or, where such a team is available, a lack of coordination of effort and information with the result that the patient fails to receive a consistent approach. An interdisciplinary team approach to the management of the diabetic patient can be said to be the most effective means to deliver health care and meet the health care needs of any defined diabetic patient population. The problems encountered in the implementation of an interdisciplinary approach in the treatment of the patient include perceived threat due to individual inadequacies, lack of communication between physicians and other members of the team, lack of planned educational programs, lack of time, lack of teaching personnel, and lack of knowledge and skills among health personnel to provide patient education (6, 36, 37, 38, 39). These factors are complicated by the fact that there are very few follow-up re-education or evaluation programs to assess the ability of the patient to perform self-care (9, 13, 40). These observations underscore the significant inadequacy of current patient education (1-3, 7, 9, 11, 15-18, 20, 41).

One major problem in the existing inadequacy of patient education is the lack of third party coverage. Patient education cannot be accomplished if compensation is not available for the educational activity of physicians, nurses, dietitians, and other health professionals. As the references at the end of this report substantially indicate, there is considerable support for third party payment for patient education based on the value of such education in reducing the use of medical facilities and manpower. Here again it must be emphasized that PATIENT EDUCATION IS AN ESSENTIAL PART OF TREATMENT, and the costs involved should be handled the same as those involved in any other aspect of therapy (20-30).

In the area of home management of diabetes particular emphasis is needed in regard to the importance of diet and proper nutrition. It is agreed that a consideration of diet and nutrition is a cornerstone of diabetic patient care and education. In fact, it has been stated that, "with little exception most authorities recognize that some form of dietary therapy should serve as a basic principle in the treatment of the diabetic" (42).

There exists the paradox that only a small fraction of patients are permanently well-regulated, even though 80 to 90 percent could be by the use of the improved types of insulin. This is most often due to the failure of education or to lack of cooperation by the patient with respect to diet, even though the degree of dietary cooperation required for normoglycemia is only a day-to-day constancy of $\pm$ 15 to 20 percent. Less frequently, it is due to lack of understanding by patients that a correct diet is still the important prerequisite even when insulin is added to the regimen (10). The critical importance of diet has been attested to by many authorities in the field and is well documented in the pertinent literature (42-46).

An even more critical relationship between diet and diabetes is recognized in regard to maturity onset diabetes. It is accepted that obesity is associated with maturity onset diabetes and that the prevention of obesity may prevent the onset, in persons over age 40, of frank diabetes. Likewise, it is accepted that diet is a major factor in the prevention of obesity and, therefore, in the management of diabetes. It consequently follows that nutrition education and diet counseling are essential services for both the primary and secondary prevention of diabetes (42, 45, 46).

It is agreed that there is no one single dietary approach which is applicable to all diabetic patients. On the contrary, it is recognized that the needs of the obese non-insulin-dependent patient are quite different from those of the non-obese insulin-dependent patient, and that the dietary objectives and strategies should be quite different in the two main types of diabetes (44). Whereas the reduction of caloric intake is fundamental for the obese non-insulin-dependent diabetic

patient, caloric intake should not be restricted below normal levels in the lean, insulin-dependent patients (44-46). Likewise it should be noted that the previous emphasis on the restriction of carbohydrates in both major types of diabetes has been questioned insofar as insulin demands seem to relate to total fuel supply rather than the amount of dietary carbohydrate. Therefore the increase in dietary fat which resulted from the previous approach can be avoided (44-46).

The diet should be tailored to the particular realities and needs of the individual. It is important to give serious consideration to such factors as food preference, ethnic food patterns, customary food habits, budget, food preparation facilities, family setting, level of education, physical activity, and other factors relating to available and acceptable food (46).

Although the importance of patient education in the area of diet and nutrition is recognized, the problems in accomplishing the desired objective are also readily apparent. For example, diet instruction is often not given at all when diabetes is diagnosed in adults during a routine physical examination or during an examination related to other illness. When diet is considered, it is often dealt with simply by distributing materials prepared by commercial firms, pharmaceutical industries, or by a dietetic or diabetic association without further involvement. Unless the person with diabetes has significant hospital contact, exposure to a dietitian, or someone else specifically trained in this area, is rare. Even those diagnosed in a hospital, or similar institution, do not necessarily receive better attention in this regard, and the presence of other illness concerns interferes with the attention which should be given to the importance of diet in regard to diabetes. The problem is compounded further by the reality that available materials which are used are often so complex that they cause confusion and frustrate the desired goal of dietary management, leading instead to neglect of a proper dietary routine (42).

Furthermore, data from the Diabetes Supplement to the National Health Survey conducted in 1964-65 (47) showed that 22% of respondents said that they were not given a diet and 25% said that they were given a diet but did not follow it. Of the 77% of respondents who reported receiving a diet, only about three-fourths said that they had been taught how to use it while only 53% of the total sample said that they followed their diet (47). Of those who reported using the exchange system, only 26% scored as having "good" knowledge of it. However, dietitians were twice as successful as nurses or physicians in influencing knowledge about diet (48).

The inadequacy of current patient education in nutrition has been extensively documented in the literature (7-10, 44, 45), and the results of poor education are seen in various studies on patient compliance.

Williams has noted that studies through actual observation of diabetic patients' performance of recommended measures of treatment, as an indication of what they know about how to manage their disease as well as commitment or motivation to carrying out the regimen, have shown that 65 to 90 percent of patients studied had major deficiencies in the types of foods selected, in proper spacing of meals or snacks, and/or in regularity of diet (2).

Another study indicated that only one patient out of eight could have adhered to the recommended diet on a given day, based on a one-day recall. When seven-day records were examined, it was apparent that over three-fourths of the patients were not complying with the dietary recommendations (43). Further documentation of poor compliance to the desired diet regimen is evident in the literature (8, 10, 11, 44, 45).

Beyond the problems of general knowledge and compliance, it is apparent that there is a serious lack in regard to appropriate teaching materials. Problems in this area include diet manuals, cookbooks, etc., which are not aimed at the accepted reading level of persons with diabetes; absence of material for individuals who lack an understanding of English; absence of materials for people whose ethnic and/or cultural customs are contrary to those represented by the "usual" American foods; and the "food exchange system" which is, for many people, too complex to master and adapt to their daily lives (42).

The inadequacy of available literature was particularly emphasized in the public testimony of Diana B. Camacho, who said that:

> A most common complaint by the Spanish-speaking citizens in Texas who are afflicted with diabetes is that the diabetic information available to them is only a translation, from English to Spanish, and is not a diet that takes into account their already well-established food habits. We must realize that we do not make food anymore acceptable, nor do we change established food habits by making a menu readable. In essence what we may be left with is a Mexican-American with an Anglo diet who is longing for the foods they used to eat before learning of their condition (49).

A similar problem for Asian-Americans was referred to in the public testimony of George L. Hom (50).

The above illustrates the need for better patient education in regard to diet and nutrition and the central importance of diet therapy in treating diabetes.

2. Inadequate education of the diabetic seriously affects the lifestyle of the individual and compounds the psychological problems.*

It must be recognized that diabetes affects the total life of the person. His daily routine and activities are seriously influenced by his condition. His life involves the regularity of injections (therefore the presence and use of needles), the regularity of urine tests, permanent modification of diet and eating habits, the balance of diet and exercise, living with a chronic disease for which there is no known cure, and the possibility of serious complications resulting from his condition. On top of this, his life is often needlessly restrained. The adolescent with diabetes may be over-protected by his family and his teachers, curtailing his activity in athletics and other physical pursuits, and even restricting his social involvement. The adult with diabetes faces problems obtaining employment, variable licensure requirements, and the possible inability to obtain a driver's license. Young or old, the person with diabetes is often overly, or needlessly, self-limited by his condition and/or made by others to feel different from "normal people." His difficulties may be even further complicated, and all too often are, by having been given a very rigid therapeutic regimen with the expectation that he will restrict his life to fit that format. Much of this restriction of lifestyle is directly attributable to lack of understanding by the patient (family or others) of the nature of his disease. Few diabetic patients are given training in adapting self-management principles to their lifestyle.

The problem is further complicated by the fact that because the patient may be, and all too often is, unaware of the psychological ramifications of his disease and may perceive his problems in physical rather than psychological terms, he may fail to seek emotional or psychological counseling. Adolescents with diabetes have even more acute difficulties. Aside from the self-consciousness of being thought to be different, these individuals can have a multitude of justified anxieties regarding such matters as potential blindness, complications of pregnancy, possible impotence, employment, insurance, financial concerns, and ability to live alone. This undoubtedly places a strain on the individual's ability to cope with himself, with society, and with his relationship to society.

Although camp programs for youthful diabetic patients in particular have been very helpful, and many physicians and other health professionals have offered considerable emotional support as a part of their normal therapy, nonetheless relatively few persons of any age with diabetes receive adequate emotional and psychological assistance. Even if

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*See Report of the Socioeconomic Impact Workgroup of the Scope Committee for documentation.

the person desires professional counseling, the cost may make it effectively unavailable, or, at the very least, cause a large financial drain on his resources. Here also, as is true in other areas of the treatment of persons with diabetes, there is a seriously inadequate utilization of existing health resources, particularly the use of allied health professionals who, together with the physicians and through patient education, could alleviate many of the underlying causes of anxiety.

3. Persons with diabetes who also have physical complications receive inadequate patient eduation.

Persons with diabetes often suffer physical handicaps as a result of the complications of their illness. These handicaps include, particularly, impaired vision, or even blindness, impaired nerve functioning, kidney failure, vascular insufficiency, and amputation. Such handicaps can often be prevented by proper treatment and education, and, if they do exist, their detrimental influence can be lessened by educational programs designed for the person's particular needs. The problem of the individual with diabetes who is blind or has impaired vision is often further complicated by reduced nerve functioning which makes it impossible to learn the Braille system.

In the face of such difficulties it is particularly unfortunate that such diabetic persons with physical handicaps have meager, if any, educational programs and rehabilitation opportunities. In addition, there are virtually no coordinated efforts to teach handicapped diabetic patients to handle both their handicap and their diabetes simultaneously (51).

This group of patients, because of the added problem of complications or handicaps, should be recognized as a high-risk psychological needs group. Individuals in this category point out the striking need for a coordinated health care delivery effort. Need for training goes beyond the physician-patient relationship to a coordinated effort of several health professionals, including particularly physical and occupational therapist and vocational rehabilitation professionals, delivering a total package of health care to the individual. Again, the ability to accomplish this is more a matter of coordinating present resources than developing new ones, although new approaches are needed for the visually impaired. Much of the problem may be overcome through adequate professional education making various health care professionals aware of the benefit of coordinating efforts (52).

4. Persons with diabetes who also have language difficulties and special ethnic needs fail to receive adequate patient education.

Material for training ethnic minorities who speak other than the English language are inadequate or nonexistent. Adaptation of food plans or other aspects of diabetes management to the lifestyle of unique ethnic groups are not available, and, as a consequence, people from these groups receive almost no training and what is given is largely unusable, leading quickly to its being discarded as unacceptable to the patient's lifestyle. The consequences of this are obvious in terms of increased morbidity and mortality (49, 50, 53, 54).

Experts in communication have long recognized that the fidelity of communication (the accuracy with which a message is received) is dependent on cultural similarities between communicative participants. The language system used is one link in cultural identity. The problem, however, goes beyond language to include those factors which are relevant to a particular region, culture, nationality, etc., such as food customs, attitudes toward medical practice, family relationships, etc. The point to be made is that the success of any patient educational effort will depend on how well educational material and delivery will reflect and be consistent with the culture of the patient. Therefore, inasmuch as there are essentially no materials and no educational programs designed specifically for particular ethnic or cultural groups other than English-speaking white, middle-class Americans, these other ethnic and cultural groups are receiving very seriously inadequate patient education.

5. Persons with diabetes who also have various learning disabilities fail to receive adequate patient education.

Those patients with diabetes who also have learning disabilities are faced with the double problem of disease and disability, the seriousness of which is compounded by the fact that their learning disability inevitably affects their ability in self-care. This is true because of the lack of educational materials designed for individuals with limited or no reading ability, or with limited ability to learn, and the lack of professional time or expertise to devote to these persons (1, 10).

Consequently these patients may fail to properly care for their diabetes, thereby leading to unnecessary morbidity with its social and economic disadvantages or even in early mortality.

6. Needs of the person with diabetes at different ages (e.g. infant, children, adolescent, young adults, aged) are not adequately recognized and provided for.

Special problems of diabetic patients of different age groups are not included in most training programs. Examples include food acquisition and tastes of the elderly, flexibility of the young working adult, family and career planning for young adults, special needs of the adolescent, and the social-emotional impact on the family of a child with diabetes (8, 14).

Failure to provide meaningful interpretations and practical solutions to special educational problems of various age levels lead to denial, rebellion, and lack of proper management of diabetes with consequent increased morbidity and unnecessary disease complication.

There is a need for materials which recognize specific age level requirements in conjunction with cultural realities and involving a coordinated effort by health professionals to attack the problem at the local and regional levels.

C. DISCUSSION OF PROBLEMS IN PUBLIC EDUCATION.

1. Public awareness of diabetes as a health problem is inadequate.

The problem of public awareness of diabetes can be looked at in terms of knowledge or cognitive deficiences on the part of the general public in terms of attitudinal bias which may be projected by the general public toward the person with diabetes.

The lack of knowledge about diabetes in the general public leads to a lack of detection of the disease, in that signs and symptoms of the disease go unrecognized, leading to unnecessary morbidity and loss of effective manpower. Many individuals are unaware that diabetes frequently leads to blindness, kidney failure, coronary and artery disease, so that the magnitude of the problem is often not appreciated.

The existence of an attitudinal bias toward diabetes often leads to discrimination against the person with diabetes and thus the exclusion of the person from societal roles with economic and social ramifications for the individual and for society. These negative attitudes usually reflect misunderstandings concerning the limitations, or lack of, and abilities of the person. This results, for instance, in discrimination against persons with diabetes by insurance companies, the variable and unnecessarily restrictive licensure requirements, employer discrimination, and the discriminatory exclusion of persons with diabetes from careers, sports, camps, and other social/community activities.

In a report entitled "Diabetes & Employment" (55), Dr. Arthur Krosnick points out that segments of industry (56-58) and of federal government (59), while seeming to base employment policies on ability to perform (i.e. severity of disease, degree of control, etc.), actually follow a policy of non-hiring of persons with diabetes (55, 60-62). McGowan, from WHO Committee on Diabetes Mellitus, "viewed with dismay the restrictions in many countries hindering the employment of diabetics. All too often these restrictions are purely negative and are based on prejudice or ill informed opinion about the effects of diabetes on a person's working ability or capacity" (63). Because of the widely prevalent concept that persons with diabetes are more prone to injury or accident and that slow healing leads to exaggerated insecurity, health and accident insurance rates have an indirect effect on hiring practices, even in the absence of a formal policy (55). Similarly diabetic patients are excluded from coverage of second injury laws, further decreasing the incentive to potential employers (55, 64).

Some reports from industry claim that employees with diabetes have more days of sickness absenteeism than non-diabetic employees (65-67), but others claim that diabetic employees perform the job as well as the typical non-diabetic employee (55, 58, 68, 69). Entmacher, after reviewing a number of reports on the subject, concluded, "studies indicated that for the overwhelming majority of employed diabetics the quality of performance is high and that the record of absenteeism is favorable" (70). Usage of rehabilitation services by people with diabetes is low (56) and primarily related to young males with blindness (71).

There is evidence that people with diabetes meet discrimination in career planning because of policies of education and training institutions. Many schools of nursing exhibit reluctance to accept applicants with diabetes for nursing training (72). People with diabetes are discouraged from entering many professions, such as candy or food preparation, travel agents, train personnel, transportation, roofers, scaffolders, powerline repairmen, firemen, executives in industry, etc. (73). In point of fact, people with diabetes can, and do, function in high managerial positions as well as in positions requiring manual labor (70).

Although issuance of a driver license to a patient with diabetes almost invariably depends on the physician's health certification, there is evidence of inconsistency. Forms used are often derived from and compared with those controlling licenses of epileptics. Many people with diabetes are not permitted to drive commercial vehicles (74). Only the diet-controlled diabetic patient who does not have significant complications can be issued a commercial or private flying license (75).

The lack of knowledge by the general public about diabetes needlessly affects the lifestyle of the diabetic patient in economic and

psychological terms. In the same sense, the American people are being denied a potential human resource through ignorance and misunderstanding.

2. Misunderstanding and/or misconceptions of diabetes by segments of the public leads to incorrect or discriminatory handling of persons with diabetes.

Many people in their occupational or role responsibilities come into contact with persons who have diabetes, and this portion of the public has a significant impact upon the life of these people. They are often in a position to offer emergency care in a crisis situation and, through their contact, they have an important influence on the psychological well-being of people with diabetes. Examples of occupations and roles involved would include teachers, bus drivers, employers, policemen, firemen, ambulance and emergency room personnel, and youth workers, such as scout leaders and camp counselors.

Most of these individuals receive little, if any, special education and training in regard to diabetes, and, where programs do exist, it is apparent from the experiences of people with diabetes that they are often inadequate. Consequently, inadequately informed school personnel can cause needless embarrassment and fail to act to prevent health problems of students; inadequately trained emergency personnel, including emergency room personnel, can fail to properly treat acute coma and insulin reactions; law enforcement personnel can draw incorrect conclusions from the possession of hypodermic needles; youth leaders and athletic directors can overprotect adolescents or restrict or ban their social involvement; employers can misunderstand the patient's condition thereby resulting in job difficulties.

The effects of these and similar situations present both a serious health hazard to the person with diabetes and a negative psychological environment which can damage the individual's self-concept and eventually even his ability to effectively manage his own disease. The social and economic consequences of such inadequate education and training can be quite severe while the psychological and health trauma can be devastating. This problem is even more disheartening because appropriate materials have been prepared, but, through a lack of consistent, coherent, and coordinated effort, they are not readily available to those who need them.

D. FUTURE DIRECTIONS.

To provide optimal care and to ensure quality of life for the diabetic patient, it must be recognized that the patient plays a key role in his own care. It follows, therefore, that, if the diabetic patient is to assume an active role in his own care, education of the diabetic

patient must be an integral part of his therapy. To achieve optimal education of all diabetic patients the Workgroup on Patient and Public Education outlined the following objectives and approaches.

1. Ensure that every patient with diabetes is given adequate education as part of his/her therapy.

   a. Ensure adequate education of newly-diagnosed diabetic patients.

      1) Develop appropriate teaching materials tailored to the individual needs of the diabetic patient, taking into consideration insulin dependency, age, educational level, ethnic needs, etc.;

      2) Develop individual coordinated training programs utilizing appropriate team personnel;

      3) Identify the socioemotional problems attendant to the knowledge of having been diagnosed as having diabetes, and provide the initial dialogue concerning the emotional aspects accompanying the onset of diabetes.

   b. Ensure that every diabetic patient receives adequate education in the home management of diabetes.

      1) Develop programs which emphasize self-care and provide opportunities for continuing emotional support. Program development should be designed to provide experiences that assist in the adjustment to problems of living with diabetes appropriate to age, educational level, social, emotional and/or ethnic variables;

      2) Develop within diabetic training units the expertise to gear the educational efforts to the individual characteristics (social, cultural, etc.) of the diabetic patient;

      3) Develop communication mechanisms (materials and media) to provide ease of access to health care information;

      4) Identify facilities for diabetes education, such as centers for diabetes education and training, satellite teaching units in hospitals and clinics, etc., which are staffed by appropriately trained personnel.

   c. Ensure that every diabetic patient is provided the opportunity to receive social-emotional support services.

1) Develop programs and training materials for mental health personnel to facilitate their understanding of diabetic patient care;

2) Develop programs to sensitize health care providers of diabetic patients to the social-emotional problems attendant to the onset of diabetes;

3) Establish regional advisory councils to provide liaison between diabetes health care providers, mental health personnel, and voluntary agencies;

4) Develop diagnostic procedures to identify persons with diabetes and families of diabetic patients in need of formalized psychosocial support services.

d. Ensure that diabetic patients with physical and other disabilities receive adequate education.

1) Establish programs for the development of innovative approaches and materials for health care information to physically handicapped diabetic patients, e.g., the blinded, amputees, and patients with neurological complications;

2) Establish regional advisory councils to aid in the identification of and referral to resources for the physically handicapped.

2. Ensure that educational approaches are tailored to the individual needs of the patient with diabetes.

a. Ensure that educational approaches are linguistically, culturally, and regionally relevant.

1) Develop diabetes educational material which is linguistically, culturally, and regionally relevant;

2) Develop mechanisms for the coordination of available resources such as the state land grant universities and cooperative extension services to provide professional implementation and aid in development of materials;

3) Establish regional advisory councils comprised of individuals representative of regional subcultures to assess needs and aid in program and material development.

b. Ensure that educational approaches are geared to the age level needs of the diabetic patient.

1) Initiate a study to determine appropriate education approaches and special needs as related to age considerations.

2) Develop age-specific programs and materials in response to identified needs.

3) Develop programs to provide opportunities for social, psychological, occupational, genetic, and/or other counseling as needed by various age groups.

4) Develop programs designed to provide age-related group experiences such as teen trips, group social events, camps for youth, and supportive group experiences for parents of diabetic children.

3. Ensure an adequate level of public knowledge concerning diabetes as a health problem.

a. Ensure that the general public has an awareness of the nature of diabetes.

1) Develop educational materials and programs for the general public based on regional needs as assessed through an audience profile designed to determine public attitudes and knowledge;

2) Implement detection programs in high-risk segments of the population;

3) Establish mechanisms for the coordination of existing resources, such as voluntary health agencies, industry, federal agencies, and cooperative extension, to deliver health education to the general public;

4) Develop a clearinghouse for diabetes information to provide materials to the concerned public, such as legislators, insurance companies, etc;

5) Utilize audience profile as a pre-test for continual monitoring of the effects of the educational effort.

b. Ensure that special segments of the public are educated to treat the person with diabetes in crisis situations.

1) Develop programs and materials for service segments of the population, such as policemen, firemen, teachers, bus drivers, camp counselors, etc.;

2) Develop mechanisms to incorporate information about diabetes into the training programs and curricula of service segments of the public;

3) Develop materials and programs based on assessed regional needs;

4) Evaluate the effects of the educational effort by studying the decisions made by service segments of the public in simulated crisis situations.

REFERENCES

1. Etzwiler, D. D. Who's Teaching the Diabetic? Diabetes. 16:111-7, 1967.

2. Williams, T. Franklin. The Need for Diabetes Education. (See appendix 15)

3. Etzwiler, D. D. What the Juvenile Diabetic Knows About His Disease. Pediatrics. 29:135-41, 1962.

4. Education and Management of the Patient with Diabetes Mellitus. (Ames Co., Elkhart, Indiana, 1973).

5. White Paper: Patient Health Education, Health Care Services, Blue Cross Association, August, 1974.

6. Prater, Barbara M. The Diabetes Center: A Self-Care Living-In Program. J. Am. Diet. Ass. 64:180-183, 1974 (Feb.)

7. Collier, B. and Etzwiler, D. D. Comparative Study of Diabetes Knowledge Among Juvenile Diabetics and Their Parents. Diabetes. 20:51, 1971.

8. Etzwiler, D. D. and Sines, L. K. Juvenile Diabetes and Its Management: Family, Social and Academic Implications. JAMA. 181:304-8, 1962.

9. Stone, D. B. A Study of the Incidence and Causes of Poor Control in Patients with Diabetes Mellitus. Am. J. Med. Sci. 241:64-9, 1961.

10. Beaser, S. B. Teaching the Diabetic Patient. Diabetes. 5:146-9, 1956.

11. Watkins, J. D. and Moss, F. T. Confusion in the Management of Diabetes. Am. J. Nursing. 69:521-4, 1969.

12. Watkins, J. D., Roberts, D. E., Williams, T. F., Martin, D. A. and Coyle, V. Observation of Medication Errors Made by Diabetic Patients in the Home. Diabetes. 16:882-5, 1967b.

13. Watkins, J. D., Williams, T. F., Martin, D. A., Hogan, M. D. and Anderson, E. A Study of Diabetic Patients at Home. Am. J. Pub. Health. 57:452-9, 1967a.

14. James, R. and Sussman, K. E. "Educating the Diabetic in Juvenile Diabetes and Its Complications," Juvenile Type Diabetes and its Complications (Springfield, Ill.: Charles C Thomas, 1971).

15. Bolt, W. M. and Miller, E. C. Education of the Diabetic Patient - Physician's Dilemma. NC Med. J. 28:1-6, 1967.

16. Christman, B. "The Vanderbilt University School of Medicine Experience." Presented at Symposium on "Evaluation of Diabetes Education Programs," American Diabetes Association, 20th Postgraduate Course, San Francisco, January 21, 1972.

17. Etzwiler, D. D. Current Status of Patient Education. (Editorial) JAMA. 220:583, 1973b.

18. Trinca, J. C. and Rowe, I. L. Evaluation of Medical Education Programs. Diabetes Mellitus Telecast, 1968.

19. Patient Roundtable: Diabetes as Patients See It. Patient Care. 7:21-75, 1973.

20. Galloway, John A., "Present Status of Payment for Diabetes Education by Third Party Payers", Testimony Before the National Diabetes Commission, Los Angeles, California, May 7, 1975.

21. West, Kelly M., Diet Therapy of Diabetes: An Analysis of Failure, Ann Intern Med 79:432 (1973).

22. White Paper: Patient Health Education, Health Care Services, Blue Cross Association, August, 1974.

23. Kaiser Foundation Medical Care Program, Preventive Medicine, 1974: Oakland, California, pp. 19, 21.

24. "Statement on the Role and Responsibilities of Hospitals and Other Health Care Institutions in Personal and Community Health Education," American Hospital Association, May 15, 1974.

25. Toward a National Policy of Health Promotion and Consumer Education: A Working Paper; Report of the Task Force on Consumer Health Education to the National Conference on Preventive Medicine. The Fogerty International Center of the National Institutes of Health and the American College of Preventive Medicine, June 1975, (Preprint, recommendation 4.)

26. Report from Committee on Health Education to Health Insurance Benefits Advisory Council transmitted to the Secretary of Health, Education, and Welfare, February 15, 1974 from Annual Report of the Health Insurance Benefits Advisory Council, July 1, 1973-July 30, 1974.

27. Statement on Patient Education, American Group Practice Association, 1974.

28. Recommendations of the ADA Task Force on Third Party Payment, Report to the Board of Directors, 1/31/75.

29. Statement on Patient Education, American Medical Association, Report of the Board of Trustees, June 1975.

30. Statement of Policy Concerning Medicare Reimbursement for Hospital-based Consumer Health Education Programs, Bureau of Health Insurance, 1974.

31. Etzwiler, D. D., Tyrell, M., Ulrich, M., Wright, J., and Hirsch, A. Patient Education in Community Hospitals. Minnesota Med. December, 1972, pp. 33-7.

32. Colwell, J. A. Diabetes Education Centers, Programs, and Systems in the U.S. (See appendix 2)

33. Miller, L. V., Goldstein, J. More Efficient Care of Diabetic Patients in County-Hospital Setting. N. Eng. J. Med. 286:1338-1391, 1972.

34. Runyan, J. W., Phillips, W. E., Herring, O. et. al. A Program for the Care of Patients with Chronic Disease. JAMA. 211:476-479, 1970.

35. Miller, L. Evaluation of Patient Education: Los Angeles County Hospital Experience. (See appendix 12)

36. Etzwiler, D. D.: The Patient is a Member of the Medical Team. J. Am. Diet. Assoc. 61:421-26, 1972.

37. Graber, A. L.: Interdisciplinary Approach to the Management of Ambulatory Patients. Diabetes Mellitus. Diagnosis and Treatment Vol. III:191-194, 1971.

38. Alogna, M. Testimony Presented Before the National Diabetes Commission, Seattle, May 9, 1975.

39. Alogna, M. The Grady Hospital -- Emory University School of Medicine -- Experience. Presented at Symposium on Evaluation of Diabetes Education Programs. American Diabetes Association, 20th Postgraduate Course, San Francisco, January 21, 1972.

40. Williams, T. F., Martin, D. A., Hogan, M. D., Watkins, J. D. and Ellis, J. V. The Clinical Picture of Diabetic Control, Studied in Four Settings. Am. J. Pub. Health. 57:441-51, 1967a.

41. McDonald, A. W. The Diabetes Supplement of the National Health Survey. 1. Introduction and Overview. J. Amer. Diet. Assoc. 52:120, 1968.

42. Ronald A. Arky. The Role of Diet in the Treatment of Diabetes. Report on Treatment, National Commission on Diabetes.

43. Williams, T. F., Anderson, E., Watkins, J. D., and Coyle, V. Dietary Errors Made at Home by Patients with Diabetes. J. Am. Diet. Assn. 51:19-25, 1967b.

44. West, Kelly M. Prevention and Therapy of Diabetes Mellitus. Nutrition Reviews., 33, No. 7, 193-198, (1975).

45. West, Kelly M. Diet Therapy of Diabetes: An Analysis of Failure. Ann Intern Med. 79:425-434, 1973.

46. Turner, D. and Kauffman, M. Professional Education -- Dietetic Personnel. (See appendix 9)

47. Holland, William M. The Diabetes Supplement of the National Health Survey Ill. The Patient Reports on His Diet. JADA, May, 1968, 52:388-389, 390.

48. Stubb, Sarah C. The Diabetes Supplement of the National Health Survey, IV. The Patient's Knowledge of the Food Exchanges. JADA, May, 1968, 52:5. pp. 393-394.

49. Camacho, Diana B. Testimony Presented Before the National Commission on Diabetes. Atlanta, Georgia, July 7, 1975.

50. Hom, George L. Testimony Presented Before the National Commission on Diabetes. Seattle, Wash., May 10, 1975.

51. Allen, Marion. Testimony Presented Before the National Commission on Diabetes. Philadelphia, May 1, 1975.

52. Landis, David T. Testimony Presented Before the National Commission on Diabetes. Philadelphia, May 1, 1975.

53. Gaffney, J. T. Visiting Nurse Assoc. Testimony Presented Before the National Commission on Diabetes. Chicago, August 4, 1975.

54. Raymond, A., Director, Office of Indian Studies. Testimony Presented Before the National Commission on Diabetes. Chicago, August 4, 1975.

55. Krosnick, A. The Diabetic Employee in New Jersey Industry Proc. XVI International Congress an Occupational Health. Tokyo, Japan, Sept., 1969.

56. Kantrow, A. H. Rehabilitation and Placement of Diabetics. Del. Med. Journal. 34:279-284, Octo., 1962.

57. D'Alonzo, C. A. ibid p. 284-290.

58. Cohen, E. B. and Mastbaum, L. Employment for Patients with Diabetes. Minn. Med. 57:241-244, March, 1974.

59. McGowan, F. ibid p. 293-295.

60. Beardwood, J. T. Experiences of the Committee on Employment, The American Diabetes Association, Del. Med. Journal. 34:276-279, Octo., 1962.

61. Wijnmalen, E. H. W. Diabetes and Work. A Study of the Place of Diabetes in the Labor Pattern. Diabetes 9:129-134, March-April, 960.

62. Singer, D. C. Diabetes and the Employment Barrier. Diabetes Forecast. 28:28-30, 1975 (July-August).

63. WHO Expert Committee on Diabetes Mellitus. WHO Technical Report Series No. 310, Geneva, 1965.

64. Kornblith, B. A. The Protection Provided by the Second-Injury Amendment as it Relates to the Diabetic. J. Occup. Med. 5:246, May, 1963.

65. Pell, S. and D'Alonzo, C. A. Sickness Absenteeism in Employed Diabetics. Am. J. Pub. Health. 57:253-260, February, 1967.

66. NASR, A.N.M., Block, D. L., Magnuson, H. J. Absenteeism Experience in a Group of Employed Diabetic . J. Occup. Med. 8:621-625, December, 1966.

67. Weaver, N. K. and Perret, J. T. The Diabetic in Industry. Med. Bull Standard Oil Co. (N.J.) and Affiliated Companies. 18:304, Nov., 1968.

68. Diabetes Source Book. U.S. Dept. HEW. PHS Pub. No. 1168, 1968. p. 49.

69. Moore, R. H. and Buschbom, N. A.: Work Absenteeism in Diabetes. Diabetes. 23:957-961, 1974 (Dec.).

70. Entmacher, P. S. and Marks, H. H. Socioeconomic Considerations in the Life of the Diabetic in JOSLIN's Diabetes Mellitus. p. 789. Lea and Febiger, Philadelphia, 1971.

71. Krosnick, A. Visual Loss, Diabetes and Other Factors: A Statistical Evaluation Among Registrants of the New Jersey Commission for the Blind. Selected Papers from Symposia. N.J. State Dept. of Health. 1961.

72. Harris, E. T. and Krosnick, A. Diabetes. A Bar to Nursing? Am. J. Nursing. 65:116, Sept., 1965.

73. Lachnit, V. The Diabetic in Professional Life. Proc. XVI International Congress in Occupational Health. pp. 736-738. Tokyo, Japan, Sept., 1969.

74. Editorial Comment. Year Book of Medicine, 1975. p. 626.

75. Federal Aviation Agency. Federal Aviation Regulations, Part 67. Medical Standards and Certification, 1966.

V. RECOMMENDATIONS

Having identified the problem areas and outlined the future directions, the Committee on Education recommends for consideration by the National Commission on Diabetes the following eight broad recommendations and approaches for their resolution.

Recommendation 1:

Improve the knowledge, skills, and attitudes of the health professionals to provide effective care for the patient with diabetes mellitus.

To implement this recommendation, the Committee recommends the following:

1. Assess the practicing health professional's attitude concerning diabetes.

2. Evaluate the practicing health professional's knowledge of diabetes in order to assess educational needs and to plan specific programs of continuing medical education.

3. Design continuing medical education courses in diabetes which will attempt to assure the competence of health professionals to treat diabetic patients.

4. Develop and assess the effectiveness of diabetes education in various curricula models in health professional programs.

The Committee believes that the continuing medical education programs are the most effective means for overcoming deficiencies in knowledge of the health professions as they relate to diabetes mellitus. Numerous agencies, including the AMA, ADA, JDF, and professional societies are available to carry out this recommendation.

The effectiveness of the CME courses has been diminished by the fact that the development of these courses has not been based upon identified needs of the specific audiences to which they are addressed. For this reason, the Committee believes that an assessment of the skills, knowledge and attitudes of the various constituents should be conducted by the above mentioned agencies. Once these deficiencies in knowledge, skills, and inappropriate attitudes have been identified, courses should be developed to overcome these gaps. These courses should consist of workshops, rounds, audio-visual programs, etc., as necessary to carry out these goals. The Diabetes Research and Training Centers must play a

leadership role in the development and implementation of these scientifically conducted continuing professional education programs.

The ultimate goals of CME programs should be to update the knowledge of the health professionals and hopefully to effect a change in clinical behavior. The latter should be used as a basis for specific program evaluation. A scientific approach to program evaluation has lagged, but the Committee believes that evaluation must be built into CME.

Another means for carrying out this recommendation is to bring about an effective change in the core curriculum, as it relates to diabetes mellitus, of the professional schools. This could be achieved through various means. Funds could be made available by the government to professional schools for innovative curricula development, implementation, and evaluation.

In addition to curriculum development by the professional schools, a committee of the ADA, JDF, and appropriate professional societies, such as the American Nursing Association, the American Dietetic Association, the Endocrine Society and others, should convene to consider and recommend a "minimal essential knowledge" core curriculum. The overall curricula should be designed so as to be appropriate for each of the professional disciplines.

Numerous approaches to the education of professionals are possible. However, the Committee believes that while the professional and voluntary health agencies can play a significant role in this activity, an organization must be created to coordinate and oversee this area. This could be a Subcommittee on Professional Education of a National Diabetes Advisory Committee under the Secretary of HEW. (See XI. Project Summary Sheets: Professional Education:3-13, 16-21, 29-33, 35 which pertain to this recommendation.)

Recommendation 2:

Increase the number and utilization of health professionals specifically interested in diabetes.

To implement this recommendation, the Committee recommends the following:

1. Assessment of existing manpower specifically interested in diabetes.

2. Assessment of the diabetes manpower needs.

3. Provide funds for the training of clinical specialists in diabetes and related endocrine disorders, such as diabetologists, endocrinologists, diabetes nurse specialists, and physician assistants.

4. Develop a roster of existing diabetes specialists and share this information with communities who have a need for specialists.

5. Encourage the development of satellite treatment centers and outreach programs to make better use of existing manpower.

6. Encourage community hospitals to appoint diabetes specialists as consultants to their staff for the purpose of improving professional education and treatment.

7. Encourage the development and implementation of a team approach for a better utilization of manpower.

The Committee believes that an initial assessment of existing professional manpower specifically interested in diabetes is a first step. At the same time, a determination of manpower needs, among physicians, nurses, dietitians, and others, for diabetes education and care should be made. Based on this data, various agencies should act to increase the existing manpower pool through the provision of funds for the training of clinical specialists in diabetes and related endocrine disorders. This will include diabetologists, endocrinologists, diabetes nurse specialists, and physician assistants.

In order to attack the problem of maldistribution of diabetes specialists, several approaches are recommended. A roster of existing diabetes specialists and their locations should be maintained and shared with communities who may have a need for such specialists in their specific area. The development of satellite diabetes treatment and education centers and outreach programs should be encouraged to make better use of existing manpower. These techniques will efficiently bring together the diabetes specialists and the diabetic patients.

Community hospitals should be encouraged to appoint diabetes specialists as consultants to their staff for the purpose of improving patient care through consultation and professional education. Finally, the team approach to diabetes patient education and care will provide better services to patients through appropriate utilization of the special skills of each professional discipline. These techniques have been shown in limited experiences to provide better health care, less expensively, through more efficient utilization of professional manpower. The team approach for education and treatment, the creation of diabetes nurse specialists, the use of public health nurses as primary practitioners, and trained volunteers for teaching reinforcement and the development of

physician assistant programs are examples of this approach; and further discussion of these possibilities can be found in references 18-22 at end of Section III above. (See XI. Project Summary Sheets: Professional Education: 2, 14, 15, 16, 20, 24-27, 29, 33, 35 which pertain to this recommendation.)

Recommendation 3:

Develop effective professional educational materials tailored to the needs of the various professional groups.

To implement this recommendation, the Committee recommends the following:

1. Assessment of effectiveness of existing materials.

2. Assess the needs for the preparation of new educational materials for the education of the professional.

3. Evaluate and modify the general approach to preparation of new educational materials.

4. Preparation of new materials according to scientific principles, i.e., aims at specific audiences through techniques which are more effective to bring about enhanced knowledge, skills, and an indication of behavior.

5. Develop built-in systems of evaluation of the educational impact of the materials.

The Committee recommends the establishment of a centralized resource to screen the existing educational materials and to identify the need for additional materials. Materials will need to be categorized for use by specific audiences and those which are inappropriate should be discarded. To this end a Clearinghouse should be developed and funded. The Clearinghouse should carry out the following functions:

1. Publish an inventory of acceptable professional education materials which should be updated on a continuous basis.

2. Make recommendations concerning the preparation and evaluation of educational materials to interested government agencies, voluntary agencies, and industry.

3. Establish acceptable standards and guidelines for development and utilization of educational materials based on scientific principles.

4. Provide meaningful feedback to cooperative professionals and organizations regarding user profiles and quality assessment.

Educational materials will be evaluated and judged according to their acceptability, cost, and effectiveness as teaching devices. New materials will be recommended to meet the specific needs of each special audience. Thus, the same topic may need to be covered by separate documents for medical students and physicians in training, practitioners participating in continuing medical education courses, and specialists in diabetes and endocrinology, as well as nurse practitioners and physician assistants. For example, the subject of hyperosmolar coma cannot be clearly covered for all such audiences in a single booklet.

Educational techniques must be evaluated as well, i.e., programmed instruction, cassette lectures, and telephone communication programs may be most effective for individual or disseminated audiences, while films and booklets with moderators may prove most effective in enhancing the knowledge and skills of groups of professionals. In the final analysis, every system must have a built-in evaluatory technique for ascertaining positive trends in behavior modification. This area is so new and so difficult that imaginative educators and systems will need to be found.

Recommendation 4:

Develop appropriate teaching materials tailored to the individual needs of the diabetic patient.

To implement this recommendation, the Committee recommends the following:

1. Assess need for educational materials, taking into consideration insulin dependency, age, language, educational level, ethnic needs, socio-economics, socio-emotional needs, regional relevance, and handicaps.

2. Develop mechanisms for coordination of existing resources for material development and delivery (e.g., a clearinghouse).

3. Develop guidelines for development of appropriate educational materials taking into consideration the special needs of the diabetic patient related to age, language, ethnic background, insulin dependency, physical handicaps and emotional status, etc.

4. Establish liaison with regional groups representing special educational needs of diabetic patients to assure relevance of developing educational materials.

Implicit in Recommendation 4 is the belief that programs which take into consideration individual characteristics of the patient are more apt to be internalized and understood and therefore directly affect behavior. The problem of developing "relevant" materials demands that a means be established where possible to utilize individuals from various groups and backgrounds possessing the characteristics identified in the actual development of its materials. Health and education programs which place much of the emphasis of care on the individual patient depend on securing patient compliance. To the extent that the patient can internalize and understand the relationship between what he is asked to do and what will be beneficial for him, he is more likely to comply. It was strongly felt by the Committee that only when incentives for compliance are made relevant to the individual patient's special needs will the goal of helping the patient with diabetes live with his disease and assume an active role in his care reach fruition.

Recommendation 5:

Encourage and develop a coordinated professional team approach to diabetic patient education.

To implement this recommendation, the Committee recommends the following:

1. Assess approaches to education necessary to fit the educational needs of all diabetic patients at any stage of receptivity (i.e., newly diagnosed, hospitalized, those requiring home management, etc.).

2. Develop individualized educational programs, tailored to the needs of the diabetic patient, using a coordinated approach utilizing appropriate team personnel.

3. Develop programs which emphasize self-care and provide opportunities for continuing support. Programs should provide experiences that assist in adjusting to the problems of living with diabetes, appropriate to age, educational level, social, emotional, or ethnic variables.

4. Establish regional training centers to develop model educational programs relevant to region and geared to social and cultural needs.

5. Establish satellite teaching units in hospitals, clinics, etc., staffed by appropriately trained personnel.

6. Provide continuing educational programs utilizing appropriate team personnel (nurse, etc.).

7. Develop programs designed to provide age-related experiences such as team trips, group social events, camps for youth, etc.

In order to provide a coherent and total education program for diabetic patients, a team approach utilizing physicians, nurses, dietitians, and other health professionals is implied. The team approach, coordinated through diabetic treatment and education centers, would provide patients with greater knowledge and understanding of their disease, thus increasing their ability to assume an active role in their own care.

The team approach as envisioned implies not only greater care but a more efficient and effective use of existing resources. The problems attendant to being a diabetic patient are numerous and varied and it is unrealistic to assume that one individual professional would possess the time, skill, and knowledge necessary to satisfactorily handle the problems. The team comprised of personnel possessing individual skills, when appropriately coordinated and trained, offers the patient a more complete system of care which is more likely to be related to his needs.

Recommendation 6:

Initiate research programs to identify and deal with socio-emotional variables in patient education.

To implement this recommendation, the Committee recommends the following:

1. Assess effect of inadequate education in socio-emotional handicaps of diabetic patients.

2. Develop procedure to identify people with diabetes and families in need of psycho-social services.

3. Develop programs and training materials for mental health personnel to facilitate their understanding of the diabetic patient.

4. Establish liaison between health care providers and mental health personnel and voluntary agencies.

5. Develop programs to provide opportunities for social, psychological, occupational, genetic,and/or other counseling as needed by various age, ethnic, or handicapped groups of diabetic patients.

An important but ill understood area in diabetes education is that of dealing with socio-emotional variables. Research in this area is critical as it could lead to improved treatment of diabetic patients by overcoming psychological obstacles which impede the diabetic patient from assuming an active role in his care.

Individuals at all levels of health care delivery need to be trained and provided with material relevant to the psychological needs of the diabetic patient. In addition, materials need to be developed in relevant individual terms which anticipate psycho-social variables important to diabetic patients.

Recommendation 7:

Evaluate the effects of education on diabetic patient behavior and self management.

To implement this recommendation, the Committee recommends the following:

1. Establishment of a mechanism for retrieval of information about educational responses of diabetic patients (National Data Collection System) .

2. Development of methods of evaluation of patient response (i.e., attitude change, critical incident technique, etc.) to educational program .

3. Establishment of mechanisms to assess effectiveness of innovative educational programs and materials (role of diabetes educational training center) .

4. Development of procedures and techniques for continual evaluation of educational programs, especially relating to relevance to age, language, ethnic needs, handicaps, etc.

GUIDELINES ON EVALUATION OF EDUCATIONAL PROGRAMS

These guidelines are based on the following set of assumptions:

1. The evaluation of education programs tends to focus on the attainment of educational objectives (cognitive knowledge) and tends not to emphasize performance. This is so for a number of reasons, not the least of which is that the assessment of educational objectives has been easier and more likely to show positive results. Performance-based (behavior) criteria for assessing the attainment of educational objectives have been

less frequently employed. We feel, however, that in the case of the general objectives addressed by this report performance-based criteria are strongly implied. At the very least, a balance should be sought between the evaluation of educational objectives in terms of more traditional "classroom" criteria and the attainment of educational objectives in terms of performance-based criteria. A reasonable focal point for the assessment of educational objectives is the point of delivery. That is, a substantial part of the general evaluation strategy should focus upon the performance of individuals in their relationship with diabetes.

2. The composite educational program directed toward the accomplishment of the general objective to "Improve the knowledge, skills and attitudes of the health professionals who deliver health care to the diabetic patient" will involve a number of different educational subprograms (educational strategies and approaches) and considerable variability in the methodologies employed therein.

3. The target groups for whom these programs will be developed will vary considerably in job or task description and role in the professional relationship to the diabetic patient.

4. The delivery systems typically employed in such broad educational endeavors will probably prohibit, or at least render unlikely, the constituting of equivalent comparison groups (experimental and control groups). Therefore, comparison groups should be constituted after exposure to the educational programs has occurred and according to a standard matching procedure.

5. The development and use of different indicators for assessing the effectiveness of differing subprograms (approaches), while consistent with the traditional objective-attainment evaluation model, severely restricts, or renders impossible, comparisons among the various subprograms. Therefore, the evaluation criteria and their associated indicators should be reasonably applicable to any component or subprogram of the overall educational plan.

6. Not only should the indicators evaluate the extent to which educational objectives are being met; they should also assist in identifying specific educational needs which are not met by the overall program or its components. In other words, effective evaluation serves a diagnostic function. Therefore, an evaluation strategy should be sought which allows not only for the assessment of program success, but which also actively directs program revision.

In addition to the general evaluation plan outlined below, this report contains recommendations associated with certification, accreditation, peer review, and other forms of ongoing evaluation. Additionally, the specific program components, such as centers and established educational

programs, will have forms of evaluation as integral parts of their programs. Specific and individual evaluation plans, associated with individual subprogram objectives, are strongly urged and expected. The evaluation strategy presently treated is suggested as an evaluation and review plan appropriate to the general goals associated with professional patient and public education for improving diabetic health care. Moreover, the general strategy should emphasize evaluation at the behavioral stage (e.g., physicians' behavior, patients' behavior, and teachers' behavior) and the subprogram evaluation should emphasize, though certainly not exclusively, cognitive learning at the educational program stage. This approach is suggested as a way of avoiding the duplication -- and the potential is great -- of assessment procedures, information generated by these procedures, and evaluations and interpretations of that information. Such an approach is based upon a fundamental assumption, namely that, the assessment of traditional learning outcomes is most appropriately and efficiently accomplished in connection with specific educational subprograms; and that the assessment of performance or behavioral outcomes, specifically as they might be manifested during the delivery of health care, etc., usually goes beyond subprogram capabilities and should be approached in terms of a coherent, general evaluation plan.

In light of these considerations the following recommendations are made:

A. That part of the general objective which deals with improving the attitudes of health professionals dictates the development of an attitude scale, preferably a summated rating scale, with subscales directed toward specific attitude objects to be used in assessing attitude change attributable to participation in educational programs. The attitude objects to be measured must, of necessity, be explicated much more clearly. The development of such a scale, applicable to all or most target groups contemplated, is a relatively easy project once such explication has occurred. (The same sort of summated rating scale is suggested for assessing patient and public education.)

B. Those parts of the general objective which deal with the improvement of knowledge and skills of health professionals and special publics require much more careful planning. As a result, recommendations associated with the dimension of evaluation are more fully described.

A general strategy for evaluating educational programs such as this one must include a criterion which possesses the following minimum characteristics:

1. It must be a reasonable and fair standard against which educational efforts may be evaluated.

2. It should allow for the discovery of differential impacts with respect to job characteristics, or other subcategories of target groups (such as physicians, teachers, policemen, etc.).

3. It should allow for the discovery of differential impacts with respect to educational contents, educational components, or different aspects of a general program.

The assessment of knowledge and skills should be approached in terms of their impacts on on-the-job decisions or in some cases decisions in crisis situations. Knowledge and skills which are not observable in the professional performance of health care personnel or others might reasonably be considered irrelevant to an evaluation strategy. Consequently, the impact of various educational programs on the professional performance (on-the-job decisions) of health care personnel, etc., is a criterion which seems to possess the three characteristics identified above. First, in all but the most unusual cases, it is a reasonable and fair standard against which educational efforts may be compared. For more specific objectives which educational programs might have, a reasonable assumption is that most programs are designed to improve the performance of participants. If the jobs performed by participants involve other than purely mechanical skills, then one of the most basic ingredients of job performance is the resolution of decision situations. To the extent that specific jobs allow for behavioral alternatives, the resolution of on-the-job decisions is an essential characteristic of the job. The very least that should be expected of training programs in general, or educational programs in particular, is that they influence the manner in which on-the-job decisions are resolved.

Second, the program presently contemplated will be directed toward individuals performing a variety of jobs. Programs are frequently effective with respect to some subcategories of participants, but relatively less effective with respect to other subcategories of participants. Rarely is a program either totally effective or totally ineffective. Consequently, a productive approach to program evaluation is one which allows for modification and revision of educational efforts. Unfortunately, much contemporary program evaluation treats success as an all-or-nothing phenomenon. The results of evaluation frequently yield the conclusion that "It works" or "It doesn't work." The identification of a general evaluation criterion would allow for more realistic appraisals of educational impacts. Resolution of on-the-job decisions is a criterion which would allow for comparisons of subcategories of participants. Hence, the results of such an evaluation would allow for modification or revision of educational efforts, the redirection of program emphases, and the more appropriate use of information generated by the evaluation strategy.

Third, rarely are educational programs uniformly effective or ineffective. Some features of a total educational program may be relatively effective while other features are relatively ineffective. Unfortunately, if different dimensions or aspects of a total educational program are evaluated according to different criteria, then no comparisons among elements of a total training program are possible. However, if a generally appropriate criterion can be identified, then comparisons among different elements of a total educational program are possible. The resolution of on-the-job decisions is a criterion which would allow for comparisons among different elements of the total education program with which we are presently concerned. Hence, subprograms could be modified in terms of retaining those which influence on-the-job decisions and revising or modifying those which seem to have little impact on the resolution of job-related decisions.

The evaluation strategy herein recommended assumes that "jobs" can be characterized in terms of the types of decision situations encountered by individuals performing the job. It is possible, therefore, to secure answers to the following questions:

1. What kinds of decision situations are characteristically encountered by a given target group in the routine performance of their jobs?

2. What kinds of decision situations, encountered by these individuals, are influenced by the education they have received?

3. To what extent is there a good fit between the educational programs and the job requirements?

The answers to such questions are attainable by following the general strategy known as "critical incident technique." This basic strategy, one which should be familiar to whatever agency is selected to perform the evaluation, should be modified within the following general constraints:

1. The selection of target groups, using probability sampling plans, for which critical incidents (specifically, decision incidents) may be generated.

2. The development of a comparison base, either through pre- and post-interviewing or through the description of performance characteristics for target ("trained") and for matched ("untrained") groups.

3. The sampling of decision incidents, by decision category, to be evaluated for "correctness" by a purposely selected panel within each professional role or job classification.

An example of this evaluation strategy, applied to a general training program consisting of 55 subprograms, is available in "The Impact of Training on Job-Related Decision," Department of Justice, Law Enforcement Assistance Administration, Project #72-C3-(2)-C, June 1973.

Given the general objective of improving health care for the diabetic patient, an additional criterion might be suggested. That criterion might be labeled "facilitation," and would refer to the extent to which the professional performance of health care personnel facilitates the patient's: (a) understanding of his condition, (b) confidence in coping with the condition, and (c) avoidance of error in self-care treatment. This additional criterion would take appropriate note of the relationship of the diabetic patient to the health care system. Since considerable responsibility for the treatment of diabetic patients rests with the patients themselves, an additional evaluation criterion taking into account this fact is suggested. Consequently, it is suggested that the evaluation plan include the development of indicators for (a), (b), and (c) above.

C. Research in educational methods used so that they respond to the need of improving the care of the diabetic patient may be met in conjunction with the evaluation strategy recommended herein. The critical incident interview may include a direct focus upon the educational methods or techniques, included in the subprograms that respondents have been exposed to, which in any way influenced or assisted respondents in resolving specific on-the-job decisions. In other words, it may be valuable to consider whether or not criterion measures likely to be employed in research concerning educational methodologies are relevant specifically to the issue of improving health care delivery for the diabetic patient. At the very least, it seems reasonable to suggest that whatever criteria are isolated for evaluating the educational programs contemplated herein might also be appropriate criteria for assessing the effectiveness of methodologies employed within those educational programs. (See XI. Project Summary Sheets: Professional Education: 5-7 which pertain to this recommendation.)

Recommendation 8:

Develop and evaluate educational materials and programs for the general nonprofessional public and for "special publics" who relate to diabetic patients.

To implement this recommendation, the Committee recommends the following:

1. Assess public knowledge of diabetes and public attitudes toward people with diabetes on a regional basis through audience profiles .

2. Develop appropriate educational materials and programs for the general public to make the public aware of the nature and scope of diabetes as a health problem .

3. Develop materials and programs for service segments of the population such as police, firemen, teachers, bus drivers, camp counselors, etc., designed to provide information to equip them to aid diabetic patients in crisis situations .

4. Develop mechanisms to incorporate information about diabetes into training programs of service segments of the public .

5. Establish mechanism for coordination of existing resources in development and delivery of public health educational programs .

6. Develop a clearinghouse for diabetes information to provide materials to concerned public, such as legislators, employers, etc.

7. Evaluate effect of educational efforts by studying public attitudes, discriminatory practices toward people with diabetes, and decisions made by service segments and the public in simulated crisis situation.

The Committee feels that there is a need to develop educational materials and programs for the general public based on regional needs as assessed through an audience profile designed to determine public attitudes and knowledge. This assumes that general public education based on regional and cultural relevancy will provide the public with a functional understanding of diabetes and allow for the appreciation of diabetes as a health problem. A greater public understanding should aid the individual with diabetes by lessening misconceptions which lead to discriminatory behavior manifested against diabetic patients.

The development of materials and programs should be accompanied by the development of mechanisms for the collection of existing materials and the coordination of available resources for material development, and the delivery of health education to the general public. This assumes that a coordination of resources will present a multifaceted strategy for public education emphasizing regional needs with broad based potential to reach large segments of the population.

Also seen as important is the development of materials and programs for service segments of the population, such as police, firemen, teachers, bus drivers, camp counselors, etc., designed to provide information to enable these individuals to aid diabetic patients in crisis situations. Such materials should be regionally and culturally based and should enable those individuals whose occupational responsibilities bring them in contact with diabetic patients to effectively intervene in the event of crisis situations such as diabetic coma and insulin shock. It is also assumed that an educational strategy for service segments of the population will lessen misconceptions about diabetes which lead to discriminatory behavior manifested against diabetic patients.

Finally it is necessary to evaluate the effects of the educational effort by studying the decisions made by service segments of the public to simulated crisis situations. It is assumed that an evaluation strategy employing "critical incident methodology" will provide knowledge about the probable behavior of individuals in the target audience when confronted with diabetic patients in crisis situations. Also implied in the evaluation strategy is a feedback system which will allow for revision of the education program if it proves to be necessary.

VI. PRIORITIES

The Committee on Professional, Patient, and Public Education has established the following priorities regarding its recommendations:

1. CONTINUING MEDICAL EDUCATION PROGRAMS FOR HEALTH PROFESSIONALS.

2. DEVELOPMENT OF EDUCATIONAL PROGRAMS FOR THE PATIENT AND HIS FAMILY.

3. DEVELOPMENT OF EDUCATIONAL MATERIALS FOR:

   a. Patient and his family

   b. Public

   c. Professionals

4. SPECIAL PUBLIC SEGMENT EDUCATION

5. EVALUATION

6. MANPOWER

VII. IMPLEMENTATION STRATEGY

The implementation of the recommendations of the Committee on Professional, Patient, and Public Education will require utilization of all available resources in government and outside of government. To this effect a Workgroup on Resources, chaired by Mrs. Joyce Kortman and Dr. Jack Barwind, has prepared a special report identifying resources in various federal agencies, and state, regional, and voluntary organizations which may be potentially available to a national diabetes treatment and education program. (See: Report of the Workgroup on Resources). The National Commission on Diabetes should take into consideration all of these available resources for the implementation of its recommendations. Coordination of activities between governmental agencies, such as the National Institutes of Health, the Center for Disease Control, the Health Resources Administration, and voluntary organizations such as the American Diabetes Association, the Juvenile Diabetes Foundation, the American Association of Diabetes Educators, and others, may provide the resources and leadership to fulfill the recommendations of the National Commission on Diabetes.

Examples of three mechanisms by which coordination of activities may be brought about include:

- Diabetes Research and Training Centers in a manner which will meet professional, patient, and public education needs on a regional basis.
- A National Committee on Diabetes.
- A national clearinghouse.

The following information describes our approach toward implementing the above:

ESTABLISH DIABETES RESEARCH AND TRAINING CENTERS in a manner which will meet the professional, patient, and public education needs on a regional basis.

A. Definition of the DRT Center Concept:

We understand a Diabetes Research and Training Center to be a center in which:

1. Education is considered an integral part of treatment.

2. Research in the diagnosis and treatment of diabetes includes research into educational methods, effectiveness, materials, etc.

3. Continuing medical education programs are offered for health professionals.

4. Educational programs are offered for diabetic patients in a model clinic.

5. Educational training needs of a region are coordinated through appropriate outreach programs.

B. Activities in the Center:

1. Establishment of a model clinic. A model clinic is one in which the care and management of the diabetic patient are provided by a team of health professionals. In this model clinic educational programs will be offered to the diabetic patient and members of his family until the patient has acquired the minimal essential knowledge and skills which will enable him to assume an actual role in his own care.

2. Continuing medical education programs for health professionals who provide primary, secondary, and tertiary care in the region.

3. Research endeavors in innovative educational approaches to include the development of flexible curricula and appropriate materials which are tailored to the needs of the cultural, ethnic, age, and educational level of the diabetic patient.

4. Coordination of communications pertaining to diabetes in the region which it serves, such as:

   a. Internal coordination of research, training, and education.

   b. Organization of information programs utilizing media (television, radio, press) in coordination with the voluntary

agencies in order to increase public awareness about the disease.

c. Coordination with programs of ADA and JDF.

5. Maintain a communication center to permit health care professionals and patients to receive consultations or information regarding diabetes and its care.

6. Exploration of innovative uses of health care professionals in the delivery of diabetes health care (e.g., diabetes nurse specialists, physician assistants).

7. Develop an outreach program which will fulfill the educational/training needs of the region.

   a. Encourage provision of educational/training services to unserved or inadequately served communities.

   b. Provide seed money for the establishment of education programs in underserved areas. Encourage financial independence with flexible support phase-out policies.

   c. Provide supervision of educational activities within the area served by the center through area coordinators.

   d. Encourage and implement information of satellite centers to provide delivery of education/training programs (see supplemental description).

C. Evaluation:

Concurrent evaluation of educational effectiveness should be programmed into all center activities. Such evaluation could be devised as research demonstrating the impact of educational programs on objective measures of patient performance on health status indicators. There should be periodic meetings of the directors of the centers to review their activities and plans. They should select a delegate to represent the Centers to meet with the central diabetes coordinating committee (National Diabetes Committee).

D. Suggested Criteria for Establishment of a Diabetes Research and Training Center:

1. Although it should be understood that DRT Centers should be placed in areas where education and treatment programs exist

under already-established funds, it should be taken into consideration that the needs of some areas of the Nation will require the development of DRT Centers de novo.

2. The potential DRT Center should be able to demonstrate its ability to gain additional financial support for education purposes from other sources.

3. Outreach capabilities should be defined and programs developed.

4. Prior to involvement in outreach programs, each State or Region involved should develop a state plan for diabetes.

E. Resources:

1. Manpower: Within a center key personnel for education may include: internist, pediatrician, nurse, dietitian-nutritionist, social worker, educator, and a group of consultants (podiatrist, behavioral scientist, epidemiologist, statistician) responsible to needs of the center and region.

2. Physical Facilities:

Key core facilities for educational programs:

a. Model clinic, availability of in-patient and out-patient facilities.

b. Physical facilities such as: examining rooms, conference and group classrooms, offices for medical and allied health personnel, laboratory, and space for individual and group dietary counseling, food preparation, and demonstration, etc., as needed for educational programs.

3. Source of Funds:

a. Items that could be supported by funds to the Center:

1) Salary support for key professional personnel involved in the educational program.

2) Salary support for key allied health trainees.

3) Salary for secretarial and support personnel.

4) Funds for core equipment and support of center core laboratories for patient education.

5) Funds for research programs in education.

6) Seed money for the establishment of the outreach program for education.

b. Funds for the support of patient care and education should come from city, county, state and national health care programs, health insurance, Medicare, Medicaid, etc.

F. Supplemental Description of Satellite Program :

Within the designated area of geographic responsibility each Center will be responsible for the establishment of satellite programs for education.

1. Region of responsiblity:

The regional responsibility of the satellite will be based upon population concentration and/or distribution as well as geographical boundaries as defined on the state plan.

2. Location:

The location of the satellite base of operational activities will be located in one of the following: (1) university hospitals, (2) government facilities, (3) voluntary health agencies, (4) local hospitals, or (5) freestanding health facilities, such as HMO's.

3. Personnel:

Financial support for the satellite program coordinator will originate from Center funds. Additional secretarial and support personnel will be funded from local sources. Consultant staff personnel will be supported by local funds; however, Center personnel should be available for additional consultation and coordination.

4. Activities:

a. All areas in the region or state interested in a satellite program must develop an acceptable diabetes education plan, including evaluation criteria.

b. Upon approval and acceptance of the plan and the awarding of funds, recruit and train satellite educational personnel.

c. Implement the diabetes education plan or program throughout the satellite region. Establish education priorities within their area of responsibility, based on existing needs.

d. Establish resources within their area of responsibility for obtaining continuing financial support.

e. Coordinate and communicate all satellite activities, both narrative and statistical, with the parent center.

ESTABLISH A NATIONAL DIABETES COMMITTEE (NDC) under the Secretary for Health, Education, and Welfare with sub-committees on professional and patient education.

A. The purpose of the NDC is to provide a continuation of appropriate functions undertaken by the National Commission on Diabetes. Examples of continued or expanded functions include:

1. Monitor the progress of the Commission's recommendations, and available resources.

2. Recommend changes to the long-range plan as appropriate.

3. Authorize formation of sub-committees.

4. Approve sub-committee appointments.

5. Review and act upon recommendations submitted to NDC by any of its sub-committees.

6. Make recommendations and endorse guidelines for developing plans to coordinate state-wide attacks on diabetes.

7. Recommend and endorse national efforts toward accumulating epidemiological data on diabetic patients.

8. Endorse questionnaires designed to assess health professional manpower needs in diabetes.

9. Review and endorse the approach toward establishing and operating the National Clearinghouse for Educational Materials in Diabetes, and appointing task forces to assess the quality of educational materials submitted to the clearinghouse for their approval.

10. Serve in an advisory capacity to the Secretary of Health, Education, and Welfare in any areas related to diabetes detection, education, and research.

B. Composition of the NDC should include representatives of the following:

The Directors of the DRT Centers, the American Association of Diabetes Educators, the American Diabetic Association, the Juvenile Diabetes Foundation, diabetic patients, professionals actively involved in diabetes research (chosen from Endocrine Society and/or Lawson Wilkins Pediatric Endocrine Society), insurance companies, educators, industries, and communication media. Ex officio members to include representatives from the Office of Health, NIH, HRA, CDC, and HSA.

C. Education Sub-Committees:

1. Sub-Committee on Professional Education:

a. Responsibilities:

The Sub-Committee on Professional Education will have the responsibility for recommending minimal essentials of knowledge and behavioral skills for health professionals involved with serving diabetic patients. Information derived in establishing the minimum essentials will provide: (1) test data for <u>voluntary</u> use by professional examination bodies, (2) information to <u>assist</u> other accrediting specialist programs, (3) information for <u>assisting</u> curriculum development within education programs for specific audiences, and (4) data for evaluating program success. Minimum essentials of knowledge and skills will be identified, in part, through national task force workshops to identify levels of professional competence in their specialty. The results of these workshops will be presented to the Sub-Committee on Professional Education for their review and endorsement. NDC will give the final endorsement for minimal essentials of knowledge and skill. Additional responsibilities will include serving as a review and recommendation body on professional education aspects of diabetes to the NDC.

b. Composition:

The Sub-Committee on Professional Education would consist of one representative each from the following areas:

1) Professional Education Committee of ADA

2) Endocrine Society

3) Diabetes Nurse Specialist

4) American Dietetic Association

5) National Association of Social Workers

6) American Psychological Association

7) Allied Health Colleges

8) Evaluation Specialist

2. Sub-Committee on Patient Education:

a. The Sub-Committee on Patient Education will have responsibilities for:

1) Monitoring federal agency programs on a continuing basis and determining their applicability to diabetes patient education.

2) Developing criterion standards for hospital based in-patient education.

3) Developing criterion standards for hospital based out-patient education.

4) Monitoring and recommending minimum standards for patient education by health system agencies, state plans, and health service area agency plans.

5) Developing minimum standards for Medicare for patient education as a part of treatment.

6) Monitoring an information bank:

a) Regarding materials, programs, and funds for patient education.

b) Research and development on patient education techniques regarding diabetes and related diseases.

7) Initiate education seminars on a regional basis in diabetes and related diseases by utilizing HEW resources in tandem with federally funded regional health offices of HEW, state, and local health agencies.

8) Work with Joint Commission of Hospital Accreditation to:

a) Develop standards for patient education.

b) Establish reimbursement procedures for health professionals providing patient education, in co-operation with third-party payers.

b. Composition:

The Committee on Patient Education will consist of one representative from each of the following areas:

1) American Hospital Association

2) Health Insurance Providers

3) American Association of Diabetes Educators

4) Voluntary Health Agencies Patient Education Committee (ADA, JDF)

5) Medicare

6) Member of Minority Group

7) Member Who Is Diabetic

3. Sub-Committee on Public Education

a. The Sub-Committee on Public Education will have responsibility for:

1) Developing criterion standards for crisis intervention information.

2) Coordinating regional seminars for voluntary health agencies and special public groups on effective techniques for public education.

3) Establishing and monitoring information bank regarding materials developed for public education concerning diabetes.

4) Determining standards for public education announcements and materials.

5) Endorsing public service announcements pertaining to diabetes;

b. The Committee on Public Education will consist of one representative from each of the following areas:

1) Major Industry

2) Labor

3) National Association of Broadcasters

4) National Junior Chamber of Commerce

5) National Education Association

6) Public Education Committees of National Voluntary Health Agencies (ADA, JDF)

ESTABLISH A NATIONAL CLEARINGHOUSE made up of health professionals and education specialists to evaluate existing education materials, identify areas of deficiency, and coordinate the preparation of education programs--in order to fulfill the needs of professional, patient, and public education in diabetes.

A. Present status: There is no established centralized resource or organization to screen existing educational materials, identify need for additional materials, or to assist in the preparation of diabetes educational materials. This frequently results in the development of inappropriate materials from many sectors, duplication of efforts, and inconsistency throughout. The net result is poorly informed health professional personnel.

B. Function of the Clearinghouse:

1. The clearinghouse should identify and publish an inventory of acceptable professional education materials. A review council of health professionals should be appointed to assess the contents of education programs in relation to established criteria. The inventory of materials should be continuously updated and be available to the public.

2. This organization should establish a regularly scheduled approach in communicating with national, state, and local organizations regarding the type or programs which need to be developed, the

status and nature of programs being developed, and the availability of completed programs.

3. The clearinghouse should provide a leadership role in coordinating efforts in the preparation of educational materials by government agencies, voluntary agencies, and industry.

4. The clearinghouse should maintain communication with other countries in the world regarding activities related to diabetes. This should include maintaining an inventory of their audiovisual materials.

5. Establish minimal acceptable standards or guidelines for development of materials incorporating the following:

   - Program description.
   - Terminal objectives of knowledge, attitude, and behavioral skills.
   - Audience for which the materials are intended - professional discipline and/or educational level of student.
   - Author name, address, and professional status.
   - Source and cost of materials.
   - Media associated with materials.
   - Criteria for assessing the effectiveness of accomplishing stated terminal objectives.

6. Encourage professionals to complete an evaluation form regarding the program. This evaluation should provide meaningful feedback regarding user profiles and quality assessment. The differentials between results of the review council's assessment of programs submitted to the clearinghouse for listing and the criteria set by the Council on Standards for Professional Education should be evaluated.

C. The Clearinghouse Advisory Body:

The Clearinghouse should have an advisory body with representation from at least the following:

1. ADA Committee on Education Materials
2. Allied Health Educators
3. Pharmaceutical Firms
4. International Communications Association
5. National Association of Educational Research
6. Juvenile Diabetes Foundation
7. National Library of Medicine

VIII. CURRENT EFFORTS AND RESOURCES

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A. INTRODUCTION TO CURRENT EFFORTS AND RESOURCES

In assessing the state of the art regarding education about diabetes mellitus in our nation, the Committee on Education of the Commission proceeded to identify the resources available in the nation in the hope that we could identify how effective they are, and the gaps existent to fulfill the needs that the health professionals, the diabetic patients, and the public have of obtaining adequate and accurate information about diabetes. That there is a need for education is a fact, and the justifications of this need are very well covered by Dr. T. F. Williams in his statement on The Need For Diabetic Education (see Appendix 15).

The role played by the American Diabetes Association is covered in detail because this professional organization (now voluntary for the past two years) was the pioneer in meeting the challenge of the need for education of the health professionals, the public, and the patient regarding diabetes.

The National Institutes of Health have provided the funds for research and the training of research manpower. A report of the accomplishments of the NIH and the state of the art regarding funds for research and research manpower on diabetes will be included in the report of the Coordinating Committee.

The Regional Medical Programs in the mid-sixties opened the door and the opportunity for the establishment of diabetes programs of diverse natures. Unfortunately, many of these programs were terminated in 1973. Luckily, some continued receiving funds from other sources and the programs, or part of the programs, were able to continue.

Only seven departments of health in the nation support comprehensive diabetes programs. Although all of them sponsor some type of activity, the most common is detection.

Medical schools have been involved in graduate and post-graduate medical education and continuing medical education courses for physicians and allied health professionals.

Other voluntary agencies, such as the Juvenile Diabetes Foundation, the American Association of Diabetes Educators, and others have played a very dynamic role in informing the public about diabetes mellitus, and the Juvenile Diabetes Foundation is providing substantial amounts of funds for diabetes research.

Education of the diabetic patient is mainly conducted on an outpatient basis and very few hospitals have been effective in patient teaching. Three hospitals merit special mention for they have very comprehensive education programs. They are The New England Deaconess Hospital (Joslin Clinic affiliated), the Alabama Diabetes Hospital, and the Grady Hospital in Atlanta, Georgia.

Industry has contributed with the development of educational materials and the allocation of funds for education and research.

The status regarding the need for the preparation of certain types of educational materials is covered.

An attempt is made to outline the manpower available for diabetes education and research. This is very rough data and more accurate statistics are very much needed.

Big gaps exist on the evaluation of educational programs and very little research in education methodology is being conducted. There is an acute need for the development of adequate evaluation techniques which will definitely point out the benefits of an education program. The experience of Dr. Leona Miller in the Los Angeles County Hospital is probably one of the few attempts to evaluate comprehensively an education program (see Appendix 12).

In the following section of this report, we attempt to summarize the resources available for diabetes education.

B. SUMMARY OF CURRENT EFFORTS AND RESOURCES

1. American Diabetes Association

a. TESTIMONY OF DR. MAX ELLENBERG: President of ADA, FY 1974-75, given at the meeting of the National Commission of Diabetes in Philadelphia on May 1, 1975:

I appreciate the privilege of being able to appear before you today. The American Diabetes Association is very much aware of the awesome responsibility that has been placed upon this Commission and the opportunity it has for pioneering in a field that has lain fallow too long.

I need hardly remind the members of this Commission of the enormity of the problem of diabetes. I feel that it is the number one health problem in this country because of the many millions of people who have this disease plus its explosive growth in an almost epidemic fashion, and the many serious complications associated with it.

The American Diabetes Association has long been the leading health group in this country concerned with diabetes, its treatment, cure and prevention. Until recently, it was a purely professional organization. However, to cope with the seriousness of the problem it changed to a voluntary health organization. It now includes lay people who have a full membership and full privilege of leadership. It is important to emphasize that the changeover became finalized only some two years ago so that the ADA in its present form is really a new two year old society. However, it has already shown a progressive, committed, vigorous, forward movement to meet the needs and challenges of diabetes.

The ADA is a network comprising over 50 Affiliates that is constantly growing and attempting to fill any existing voids. In this network there are large numbers of people involved with deep commitments who help bring the message of diabetes to the nation. The ADA and its Affiliates meet the rigorous requirements of the accounting procedures of the National Health Council of which it is a member. Also the ADA is a participant in the Federal Service Campaign, a recognition by the government of its National role in the fight against diabetes.

The ADA has a two-fold mission: 1) search for a cure and 2) a better life for diabetics while a cure is being procured. To achieve these aims we have a four point program: 1) Research 2) Professional education 3) Patient education 4) Public education.

Research

Research has had the largest growth rate in the budget of our program. It is interesting to note that expenditures for research are as follows:

1970	$208,000
1971	243,000
1972	269,000
1973	336,000
1974	836,030
1975	More than 1.25 million (estimated)

These figures point out some very important facts. It shows that when ADA became a voluntary health organization two years ago there began a sharp rise in research expenditures. Actually, the total amount spent by ADA and its Affiliates in 1974 represents the largest amount of money spent by any organization in this country for diabetes research. I emphasize money spent not just committed or approved. Raising money is not sufficient of itself. It is important, indeed mandatory, that these funds be spent in the most efficient and the most promising and productive manner. To accomplish this, we have a Research Committee of the highest and most sophisticated caliber available. Their judgments are

objective and completely independent and uninfluenced. The research funds are used to fund research projects but even more important for developing research awards for young investigators. Most recently we have set up Established Investigator Awards. The recipients of these will be guaranteed $37,000 every year for five years. This will enable them to free themselves of administrative problems and to conduct their research in a nonrestricted atmosphere. We consider the Award of Established Investigator to be a most significant approach to the research effort.

It is important to point out that one can not perform intensive research without the availability of sufficient manpower. It therefore becomes a matter of priority to interest young doctors and students in the problem of diabetes and thus generate the manpower necessary.

The ADA is concerned with other forms of research as well. Although less tangible, the publication of the Journal Diabetes which is now published once a month, is a medium of most important dissemination of research interests. It is a Journal of scientific merit that is recognized as the most outstanding of its kind in the world and is a unique contribution to research. In addition, there is an Annual Research Symposium devoted to a special subject each year. This is a multi-disciplinary meeting and invariably involves the outstanding scientists in the particular area under discussion. This again leads to remarkable increase in communication and dissemination of all available knowledge as well as new avenues of promise.

While the research is going on in an attempt to find a cure, we must not neglect the millions of people with diabetes. In this vein, it is somewhat disheartening but important to realize how far we are from a basic understanding of the disease that is necessary to lead to a cure. Therefore, all the more reason for trying to help our patients. The ADA is doing this in several ways.

Professional Education

We feel that this must begin in medical school where there must be a greater emphasis on diabetes. Following that, Postgraduate Courses become very important indeed. These are done not only at the National level where an Annual Postgraduate Course has been given for the past 23 years, but also at the Affiliate level. Such courses are given all over the country by large numbers of Affiliates to insure an ongoing increase in knowledge of the practicing physician. In this way, one can not only educate the practicing physician but also inform him of the newer advances, particularly in so far as they apply to the every day care of the patient. The ADA has also published three separate volumes on the problems of diabetes for the physician, and at the moment Volume No. 4 is in press.

The ADA, however, has gone much further. Realizing the importance of paraprofessionals such as nurses, dietitians, pharmacists, podiatrists, etc., we are now conducting Postgraduate Courses, Seminars, Symposia for these groups as well, since we realize that they are an indispensable and integral part of the diabetes team. In addition, they are now being welcomed into our organization on the same basis as physicians.

Patient Education

The great Dr. Joslin once said "He who knows most about his diabetes lives the longest." It is important to stress that diabetes is forever. The patient with diabetes must live with his disease 24 hours a day, 7 days a week, 52 weeks a year, every year of his life. It is essential, therefore, that he know as much of the practical aspects of day to day care as his physician and paramedical personnel. He must know how to manage his disease. He must be familiar with diet, insulin, hygiene, foot care, etc. He must know how to examine his urine and above all must know when he should contact his doctor.

Public Education

Although I am putting this as the fourth of our points, at the present time it deserves a degree of high priority. The apathy amongst the people of this country as regards diabetes is appalling. Diabetes is easily the least appreciated and underrated of any disease today. Most people believe that if a diabetic avoids sugar, takes insulin, or a pill, the problem is solved. In the words of Madison Avenue we must "sell diabetes to America". To do this we must "tell it like it is." I do not believe that this means scare or shock tactics which are self-defeating, but it must not permit hiding of the true facts.

I would suggest to this Commission that whatever roads it sees fit in its wisdom to take that the efforts carry with it a realization for the need of public arousal and that their labors be so directed as to make the public aware of the seriousness of diabetes. In regard to public information, this also includes the need to stimulate further legislative action so that bodies comparable to yours, and available funds will increase sharply.

Finally, we are also involved in trying to arrange Third Party Payments for diabetics including education and nutritional training. It is obvious that in this area the golden rule applies. Namely, the person with the gold makes the rule. Thus the education of the Third Party Payers must get a high priority indeed, as we are actively engaged in so doing.

We feel that our four-point program is a solid approach to meeting the diabetes problem in all its present day aspects. I trust that this Commission will agree and accept its validity. We visualize a comprehensive role for the ADA working with the NIH in the area of field trials, model programs, training of investigators, etc. We have had the opportunity of observing and learning from our sister organizations in the voluntary health field, and believe we are now equipped to do for diabetes what we have seen done in other disease areas.

Please accept my thanks for permitting me to appear here today. Please be assured that the ADA is ready, willing and indeed anxious to be of help and of service to your august body and hope and pray for your success.

b. TESTIMONY OF DR. LEO KRALL: Director, Education Division, Joslin Diabetes Foundation, Editor-in-Chief, ADA Diabetes Forecast, given National Commission on Diabetes meeting in Philadelphia on May 1, 1975:

I am here at this time to represent some of the Education activities of the American Diabetes Association, although the other hat of Director of the Education Division of the Joslin Diabetes Foundation must be quite obvious.

"Education" is one of the "Shibboleths" of our modern culture since everyone accepts its necessity and yet little is being done effectively in diabetes.

The Problem

There is absolutely no question regarding the importance of research, better patient care and all the other facets, but while waiting for the miracles and cures of the future, we have a responsibility to the probably 5,000,000 and possible potential 10,000,000 now alive in the United States alone. Unlike any other condition medically, the diabetic must have considerable knowledge simply to survive and perform his or her normal daily functions.

The lack of knowledge is taking a fearful toll in morbidity and mortality, to say nothing of crippling emotional distress among those with diabetes simply because it is not being well, or adequately done.

I am not merely concerned with the diabetics in some of the superb medical institutions in Mobile, Atlanta, Nashville, Los Angeles, or even Boston.

The fact is that probably 90% of the diabetics of the world are, and will always be treated by the general physicians of the world. This is as it should be, however this group is saddled with all the other multiple patient problems, and you must pardon a struggling physician who may treat 50 to 70 patients daily, if he either does not know, does not have the time, or thinks that other conditions may have a higher priority.

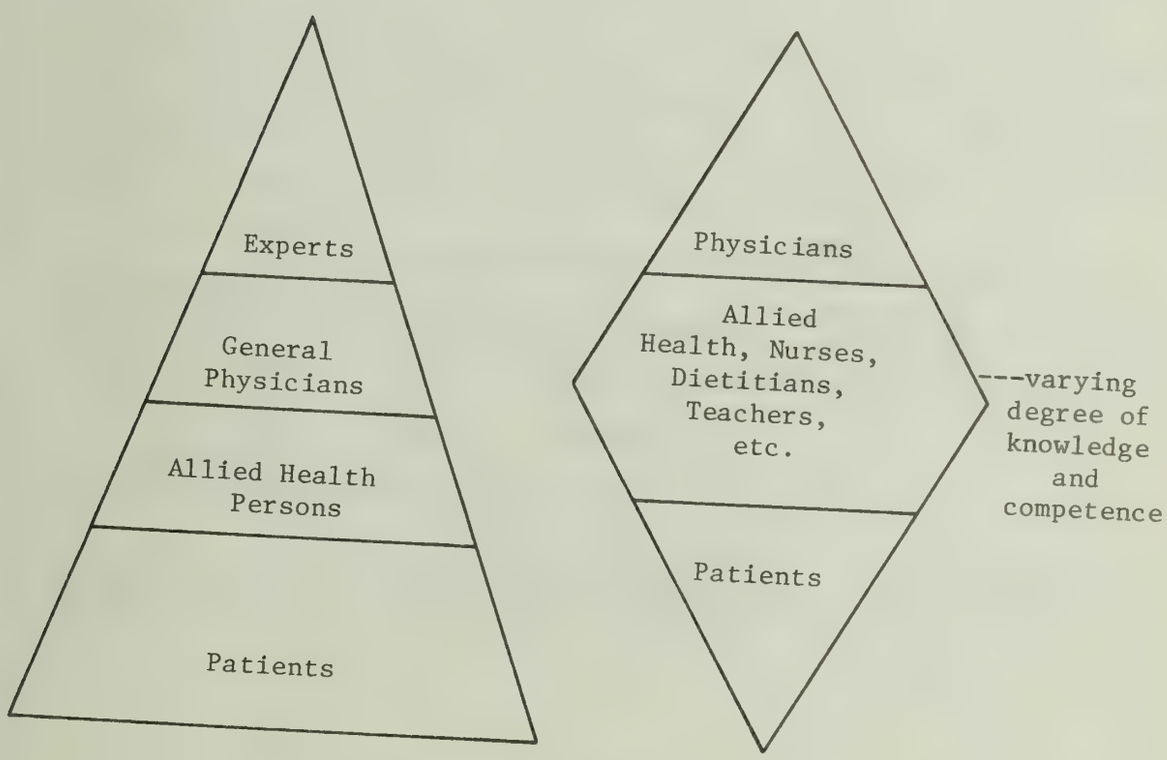
This does little for the patient except that as physicians we often repair fenders instead of rebuilding cars, or better yet preventing accidents.

Whatever the reason, this is small comfort to the juvenile onset diabetic who has fears, and honest emotional problems, to the parent of the newly diabetic child, who is afraid to leave the child for even several hours, to the person crippled with frequent insulin reactions or bout of ketoacidosis, or to persons hospitalized for long periods with foot lesions, many of which were preventable.

The job at present is not being done.

Education Levels

In theory education proceeds in this fashion (fig. 1)



In trying to teach patients we have found it is first necessary to teach the teachers, and quite often the physicians first.

Organization as a Springboard

Nothing, not even education, can be achieved without an organizational springboard, or launching pad from which to operate.

I can stand on the street corner and shout, but without organizational support, I will be like the proverbial "Voice in the Wilderness". For this reason I joined the Joslin Clinic and Foundation some 20 plus years ago, and more recently, accepted certain responsibilities with the American Diabetes Association. I now spend about 2/3, not of my working hours, but of my life devoted to trying to help the diabetic not only live better, but to live, through education.

We have been involved at all levels as one example - The Joslin Diabetes Foundation, Harvard Medical School and the local universities have been instrumental in the training and teaching of more than 5,000 Latin-American physicians in the last five years (Table 1).

SUMMARY: JOSLIN-HARVARD COURSES IN COOPERATION WITH LOCAL UNIVERSITIES

Course	Year	Site	Population of Country	Practicing Physicians	Physicians at Course
I	1971	Buenos Aires	25,000,000	16,000	750
II	1972	Mexico City	55,000,000	10,000	2,100
III	1973	Rio de Janeiro	90,000,000	9,000	860
IV	1974	Caracas	10,000,000	5,000	760
V	1975	Puerto Rico	3,500,000	4,000	600+ *

*estimated

We have organized courses involving many thousands of nurses, dietitians, nurses aides, pharmacists and others.

The greatest need, however, is that of the patient who not only has problems in living effectively, but does not know to whom to turn to get questions answered. These are the persons to whom the American Diabetes Association and other organizations and institutions are, and must increasingly address themselves.

Means of Reaching the Patient

1) PAST In the past education was done in the old classical Chautauqua lecture method. It is successful in an expensive way to help relatively few patients in a few institutions. There were (and are) manuals and other more-or-less cookbook approaches to patient education. Unfortunately these are not available to the great masses who not only do not know what is available but also do not know what they do not know! By and large, with few exceptions, these are geared to the motivated, Anglo-Saxon oriented, high school level educated person. Diabetes does not confine itself to ethnic, education, economic or phychological boundaries.

2) PRESENT In addition to the above, a widespread publication such as the American Diabetes Association's FORECAST, is the best means of educating diabetics at this time. With a circulation of 100,000 each issue, it is estimated that a quarter of a million people read it each two months. The loyalty of the reader is fanatical. However, it still requires widespread changes (in progress) larger size in pages and a much greater circulation. A circulation of 100,000 is puny. It should be two to three times that at least. Radical changes have been made and this has only been a start. Eventually, it should be a monthly of such viability and interest and such literary excellence that non-diabetics will try to get their hands on it!

3) FUTURE Modern methods will have to be used. These include regional forums for diabetics, tape cassettes for instruction, audio-visual materials available to doctors offices and small clinics, and in the future video instruction for patients on their own T.V.'s at home.

Cost of Non-Education

In addition to previously cited reasons for education there is another reason. The patient, the hospitals and the country cannot afford the crippling and expense of non-education.

This is only one example of possible savings. At the New England Deaconess Hospital during one recent year (table 2) the cost of hospitalization alone (without physician charges) was $1,000,000.

THE HIGH COST OF FOOT CARE

In this day of focus on hospital expenses, a day saved, where possible, is important. The high cost of foot lesions are shown here:

THE HIGH COST OF FOOT LESIONS

New England Deaconess Hospital
Diabetic Foot Admission - 1969

CONDITION	NO. CASES	PATIENT DAYS
Gangrene	147	4,119
Infection	32	124
Ulcer	159	3,391
Charcot's	6	64
Abscesses, Cellulitis	33	580
Osteomyelitis	45	1,264
	417	10,742

Total Hospital Admissions 10,321 (including diabetes)
These used total patient days 119,870
while
417 diabetic foot cases used 10,742 patient days
Average total cost per hospital day $101.08
Therefore: More than $1,000,000 yearly is the hospital cost (not including medical fees) for care of patients with severe foot lesions and complications in this one hospital alone!

Further surveys have shown that about 1/3 of these were preventable, another 1/3 might have been preventable or at least delayed, if patients and their physicians had been aware or if good preventive methods had been used.

The patient cannot afford this!
The medical profession cannot allow this!
The United States cannot tolerate this!

The tools of ignorance are expensive. Every diabetic must be a paramedic. Jose Marti (Cuba 1898) once said "It is better to build a fence around a cliff than a hospital under it!"

c. Other activities in education sponsored by the ADA:

Included in Appendix 1 is the Committee Structure of the American Diabetes Association, Inc., as reorganized in June, 1975. The Coordinating Committees for Patient Activities, Professional Activities, Public Activities, and Juvenile Diabetes are mainly concerned with the needs of the patient, the public, and the health professionals regarding education and treatment.

d. Activities of the Affiliates of the American Diabetes Association:

The ADA sent an Affiliate Bulletin on the request of the National Commission on Diabetes requesting information regarding the educational program and materials that are being conducted and developed by the Affiliate Associations. Included in Appendix 1 is a copy of the Affiliate Bulletin. By the 27th of July, 26 of the 50 affiliates had responded. Only one of the affiliate associations was not active, that of the state of Louisiana.

The results of this survey can be summarized as follows:

1) To whom do you address your program:

All the affiliates and their corresponding units address their educational programs, to the patient, the health professionals, and the public. Some offer a few activities per year while others do so on a regular basis. Most impressive are the programs of the affiliate associations of Southern California and North Carolina, the details of which are included in Appendix 1 as an example of how much can be accomplished by an affiliate association.

2) Needs to which the creation of these education programs responded:

Most of the medical education programs were created in response to a need expressed by many diabetic patients who felt that, although their physicians gave them some advice on their regular medical visits, they needed more intense instructions in order to understand their diabetes and to learn to live with it more peacefully.

Besides, many surveys showed that the physicians and allied health professionals had large gaps in their knowledge, skills, and attitudes regarding the care of

the diabetic patient. As an example, the survey conducted by the Regional Medical Program in North Carolina showed that 71 percent of the diabetic patients in North Carolina were in poor control, the cause of which was the lack of patient education on the part of the health professionals in the areas of basic diabetic regimen and nutrition.

The need for summer camps for juvenile diabetic patients initiated the affiliate association of North Carolina.

3) Population Served:

All of the affiliates and their units attempt to cover the whole state. The problems in reaching the people in such vast areas was quoted by all the affiliates. As an average, they estimate that they may be reaching only about 10 percent of the population. Another problem in all state affiliates is that they are not getting to the indigent population and other underserved groups, such as the Indians, Chicanos, Puerto Ricans, etc.

4) Resources:

Manpower:

Except for three affiliates whose staffs are composed of volunteers, all affiliates have an executive director and a secretary, who can either be on a part-time or full-time basis.

The affiliates of Greater Chicago and North Carolina have nine and ten full-time employees, respectively.

Funding:

The funds that support the programs come from membership fees, fund raising, private donations, and endowments in practically all of the affiliates. The North Carolina affiliate again excels and has been able to get funds from the Regional Medical Programs, the Area Health Education Centers, the State Department of Nutrition, and drug companies.

Physical Facilities:

Almost all of the affiliates have an office as head-quarters. Besides that they use the physical facilities of the community: hospital, schools, etc.

5) Educational Activities:

Besides the organization of educational activities for the patient, public, and the health professionals, the affiliates conduct many other activities such as summer camps, student career counseling programs, library resources programs, school information, data message for diabetic patients, bike-a-thons for fund raising, and other activities. See Appendix 1 for educational activities conducted by the Southern California and North Carolina affiliates.

6) Research on Education Methodology:

The only programs which can be considered innovative are those of the North Carolina affiliate. They include the Nurse Diabetes Specialist and the Volunteer Patient Teaching Concept.

7) Evaluation:

The big gap exists in the area of evaluation. The evaluation is limited to a pre-test and post-test in most of the programs and the completion of a questionnaire in which the participants evaluate the course content and the lectures.

There is a very great need to evaluate the effect of the educational process. This topic is discussed with more detail under the heading of Evaluation.

8) Educational Materials:

The booklets, brochures, and pamphlets used are mainly those provided by the pharmaceutical companies. Certain affiliates have developed their own material, particularly the North Carolina affiliate. The state of the art regarding educational materials will be covered separately.

9) Problem Areas:

The problem areas are common to most of the affiliates.

The New England affiliate enumerates the following:
(1) Too broad an area to cover, i.e., five New England states too many to be served by one organization;

(2) Need teaching units in major hospitals throughout the area so these can serve as bases for the education programs; (3) Methods have still not been developed to get participation of the large majority of the practicing physicians; (4) Not getting to the indigent population -- too often meetings require fees or are located in areas not conducive to drawing population from the inner city or rural areas; (5) Teaching materials are often not geared for patients without schooling or with defects in educational background.

North Carolina mentions problems which are common to all: the constant need of fund raising, particularly to keep an office going that needs to be four to five times its present size and needs to increase the manpower; the need for more volunteer labor, better communication between units over the state, and more dedicated people spaced at wider intervals over the state; there is also a need for more publicity to be able to reach more diabetic patients.

The Akron Area Affiliate mentions further that there is a notable lack of adequate teaching aids for use in communicating the dietetic instructions to lay people.

All of these problem areas are common to practically all of the affiliates.

10) Plans for the future:

Most of the plans of the affiliates respond to the needs expressed in the problem areas. All need expansion, more funds, and coordination of their efforts with governmental and private agencies.

2. Diabetes Education Centers, Programs, and Systems in the U.S.

In 1974, a committee of the ADA, the Committee on Education Centers and Systems, undertook to acquire data on the geographic scope, support, and staffing in centers dealing mainly with diabetes education. This survey was conducted by John Colwell, M.D., Ph.D. and results of this survey were presented to the National Commission meeting in Los Angeles, California, in May 1975.

A diabetes education center was defined as a major central area (hospital, clinic, institution, etc.) where a systematic approach to education for the diabetic patient is undertaken. Thirty-two such centers were identified. Centers could be divided into four major types: regional, a city or county hospital, a University hospital, and a private hospital. Support for the various programs has come from a variety of sources: hospital, private fees, regional medical programs, medical school, and other sources such as endowment, donations and public health services.

Details of his survey appear in a copy of his statement included in Appendix 2. Included in this statement is a listing of the centers and descriptive phrases of some of the programs.

3. Regional Medical Programs

The Regional Medical Programs provided funds which have started many education programs on diabetes in the nation. Information provided by Mr. Joseph Ott, Acting Chief, Office of System Management of the Regional Medical Program, on 6/2/75 indicated that 30 programs on diabetes had been funded. A description of the operational components of the Regional Medical Program since April 7, 1972 shows that 1% of the total budget was allocated to diabetes. Information regarding what has been the fate of these programs once the Regional Medical Program funds were terminated was not available at the central office in Rockville, Maryland. The nature of the program and state where the programs were conducted appear in a table provided by Ott in Appendix 3. A second table gives a description of the operational components of the Regional Medical Program as of April 1972.

In Appendix 3 is also included the description of the Diabetes Nurse Specialists Program, sponsored by the Regional Medical Program of North Carolina, as an example of what has been accomplished regarding the training of special manpower for diabetes education.

4. Role of the State and Local Departments of Health in Education in Diabetes Mellitus

a. Survey conducted by the Center for Disease Control

The Center for Disease Control was asked to make a report to the National Commission on Diabetes on state and local resources devoted to diabetes. They contracted the Health Program Reporting System of the Association of State and Territorial Health Officials (ASTHO-HPRS) to carry on this survey.

The results were presented to the National Commission on July 7, 1975 in Atlanta, Georgia and their report forms part of the documentation of the National Commission regarding diabetes services in the nation. The special survey sought information on five public health services related to diabetes: surveillance, detection, follow-up, health education, and laboratory. Forms were designed and distributed and state health agencies were asked to reply in a short period of time. Fifty states plus the District of Columbia and the Commonwealth of Puerto Rico returned forms.

In all, 51 of the 52 reports indicated services in one or more of these categories. There are seven programs which, after reviewing the health conditions for which the program offers services and the services made available, are classified as Diabetes Programs. The programs offer basic screening for diabetes and a range of auxiliary services. The types of auxiliary services in each diabetes program are presented in Appendix 4 and include: Health Education and Training, Public Health Nursing Services, and Nutrition Services.

Details in health education/patient education services are shown on Tables IV-A and IV-B of the CDC report (see Appendix 4). Thirteen states provide treatment clinics, 33 general health education, 29 diet counseling, 19 foot care, 16 family planning and genetic counseling, and 10 eye health. Details on resources expended for diabetes activities by agencies are shown in Appendix 4, Table VII. The state and local departments of health use a total sum of $1,703,405.00.

In 29 state health agencies there is one person charged with the direct responsibility for the coordination of diabetes activities, usually (in 25 SHA's) as part of broader responsibilities. Details of characteristics of diabetes coordinators in SHA's are shown in Table VIII of the CDC report (see Appendix 4). The title and organizational placement of these 29 persons is also included in separate tables. In only three states, Florida, New Jersey and Puerto Rico, is the responsibility with the state department limited to diabetes.

b. Examples of Education Programs supported by the State Departments of Health

1) Diabetes Program in New Jersey

Dr. Arthur Krosnick, Coordinator of the Diabetes Control Program, New Jersey State Department of Health, offered a description of his state program at the National Commission on Diabetes meeting in Los Angeles, California on May 7, 1975. A copy of his statement is included in the Appendix (4b). This program can set an example for similar programs in the nation.

2) Diabetes Education and Detection Program in Puerto Rico

In the Appendix (4a) is also included a description of an outreach program on Diabetes Education and Detection for the island of Puerto Rico. This program started in July 1970 through funds provided by the Puerto Rico Regional Medical Programs and matched funds from the department of health. Since July 1973 this broad program has been supported by the Department of Health of Puerto Rico in a joint effort with the School of Medicine of Puerto Rico. The director of the program is Dr. Lillian Haddock-Suárez, Professor of Medicine and Director of the Division of Endocrinology and Diabetes of the School of Medicine and a member of the National Commission on Diabetes. The description included will appear in a handbook on Diabetes Education to be published by the American Diabetes Association.

5. Professional Societies

A questionnaire was sent to state medical societies and other professional societies or organizations in order to obtain information regarding topics or courses on diabetes mellitus being offered for the health professionals. Most of these societies include in their continuing medical education programs topics on diabetes mellitus. Some state medical societies which do not offer continuing medical education programs (e.g. Illinois State Medical Society, Washington State Medical Association and others), referred us to the state affiliate association of the American Diabetes Association.

Most of the efforts in continuing medical education in diabetes mellitusare in the hands of the ADA and its affiliates. Professional societies, besides the state medical societies, which regularly include topics on diabetes mellitus in their continuing medical education programs are: The American College of Physicians, the Endocrine Society, and the American Academy of Family Practice. These courses are addressed to physicians.

Courses addressed to allied health professionals are mainly in the hands of the ADA and its affiliates, the American Association of Diabetes Educators, and others.

6. Other Voluntary Agencies:

a. JUVENILE DIABETES FOUNDATION

The Juvenile Diabetes Foundation is, without a doubt, one of the most dynamic voluntary agencies which is dedicated in body and soul to: (1) support and fund research for the treatment and eventual cure

of juvenile diabetes and to establish and support new and existing facilities and programs working to this end; (2) to be a central agency for the gathering and dissemination of education and information on juvenile diabetes research; and (3) to be a helping hand to juvenile diabetics and their families through a family counseling program, especially during the initial phases of the disease.

Quoting from the testimony of Mr. Erwin J. Lurie, National Chairman of the Board of Directors of the Juvenile Diabetes Foundation, presented in Bethesda, Maryland on April 23, 1975, to the National Commission on Diabetes:

> The Juvenile Diabetes Foundation is a non-professional lay organization of diabetics, parents of diabetics and friends spread across the country in 60 chapters. Through our efforts private funds are being marshalled to expand vitally needed research in diabetes. During the fiscal year, after peer review by our medical advisory board, we have assisted in the funding of ten diabetes research projects at leading research centers, and we have funded three post doctoral research fellowships in diabetes at three leading universities.
>
> We of the Juvenile Diabetes Foundation are a nationwide army of dedicated volunteers with but one deadly earnest purpose in this cause. And we will not relent. Research can arrest the complications and cure the disease.

The methods used by the JDF in fulfilling their objectives have been extremely rewarding. The leadership of the JDF were the initiators of the ground work from which evolved Public Law 93-354 -- The National Diabetes Mellitus Research and Education Act -- and within it, the National Commission on Diabetes, paving the way for intensified research into the causes and effects of diabetes and improvements in detection, patient treatment, and public education. Examples of their education materials are in Appendix 5.

b. INTERAGENCY COMMITTEE FOR DIABETES EDUCATION

The Interagency Committee for Diabetes Education is a voluntary, financially independent organization which provides educational health services for diabetic patients in Onandaga County in New York and approximately 13 nearby counties. It was founded in 1973 and as yet has no paid staff or offices, but it is supported by voluntary contributions. Its program is directed toward patient, public, and allied health professional education, as well as a diabetes detection service.

c. DIABETES ASSOCIATIONS NOT AFFILIATED WITH THE ADA

There are other voluntary agencies and diabetes associations which are not affiliated with the American Diabetes Association. The Diabetes Association of Greater Cleveland is one of these, and merits special mention for its DAC Index expresses the only attempt that has been made to collate information regarding the available literature and resources in the educational field.

d. INTERNATIONAL DIABETES FEDERATION

The International Diabetes Federation is composed of diabetes associations all over the world. In Appendix 6 are included the association members of the IDF. The IDF publishes the IDF Bulletin which is sent to all the national associations throughout the world. Through this publication, information is provided about what is going on in the various associations around the world in the field of education, detection, and research.

The Federation has existed for the past twenty-five years, and the news bulletin has been published since February 1954.

e. AMERICAN ASSOCIATION OF DIABETES EDUCATORS

On December 7, 1974 a group of health professionals interested in improving education for the diabetic patient and better communications between diabetes educators founded the American Association of Diabetes Educators. The goals of the organization are: (1) to aid in professional growth and development for those individuals responsible for diabetic patient education; (2) to aid the diabetic patient and his family; (3) to foster interdisciplinary communication on the national and local level, between those individuals responsible for educating the diabetic patient; (4) to serve as a resource center for diabetes education and; (5) to develop guidelines for diabetes education programs.

This newly formed association has its headquarters at 3553 W. Petterson Ave., Chicago, Illinois 60659.

7. Hospitals

Diabetes in the News (Ames Company) conducted a survey in the summer of 1973 among 7,000 hospitals in the United States regarding the availability of hospital-based diabetes education programs. The information obtained has been provided to the National Commission on Diabetes.

An approximately 30% response was obtained in this survey. The results indicate that at least 70% of the respondents have a diabetes education program which is addressed to both inpatients and outpatients. Of interest is that only in 5% of these hospitals did the patient pay for the Diabetes Education Program.

A similar survey was conducted by Dr. Donnell E. Etzwiler among 26 hospitals in the Minneapolis-St. Paul area. The results revealed that while all the administrators of the 26 institutions professed educational programs for their patients, only 12 could identify a specific person in charge of the programs, and only 15 of the hospitals had purchased any educational materials in the preceding year.

At present, the American Hospital Association is conducting a survey in which similar questions regarding diabetes are being asked. The results of the survey will not be ready in time for this report.

An example of an in and outpatient hospital education program is that being conducted by Dr. John K. Davidson in Grady Hospital in Atlanta, Georgia. A description of his education program was offered to the Commission in Los Angeles, California on May 7, 1975 and is included in Appendix 7 as an example of a hospital-based Diabetes Education Program.

8. Educational Materials

The Diabetes Association of Greater Cleveland, in the publication of their DAC Index, represents the only effort made so far in collating all educational information available regarding diabetes.

A need has existed for a National Information Office regarding the availability of educational materials. The American Diabetes Association has written guidelines for such a clearinghouse but the lack of funds has not permitted the ADA to assume the leadership in this endeavor.

The educational materials available for the patient and the public come from varied sources: ADA and its affiliates, pharmaceutical companies, JDF, and other voluntary agencies.

In all of the public hearings of the Commission a plea was raised for a National Information Office to serve the needs of the diabetic patient for educational materials.

The 1970 census recorded that there were more than eight million persons of Hispanic heritage in the United States, almost 800,000 American Indians, more than a million Asian-Americans and 50,000 Alaskan natives. Educational and motivational materials addressed to these ethnic groups are needed. The needs of the Mexican-Americans and the Asian-Americans were very well expressed by Diana Camacho and Dr. George L. Hom in the public hearings of Atlanta and Seattle, respectively. (See Public Testimony section of the Report.) In terms of current efforts, one book has recently been published on the Education and Management of the Patient with Diabetes Mellitus, edited by a multidisciplinary group headed by Donnell D. Etzweiler. This book is being used in the planning of the educational programs by many of the affiliate associations of the ADA. Also, a handbook on Diabetes Education is being prepared by the American Diabetes Association and will soon be published. These two books will be of help to all groups interested in preparing education programs. Guidelines have also been prepared by the ADA Committee on Education Centers and Systems which could be followed by groups planning to develop education programs on diabetes on a regional basis. A copy of these guidelines is included in Appendix 8, and they can be obtained from the ADA.

D. APPENDICES

APPENDIX 1

AMERICAN DIABETES ASSOCIATION

COMMITTEE STRUCTURE

of the

American Diabetes Association, Inc.

The committee structure has been revised to eliminate duplication of effort and reduce the number of committees reporting to the Central Council and the Board of Directors.

Coordinating Committees have been established, to be chaired by a member who is not an officer (each coordinating committee will be under the supervision of an officer, as determined by the Executive Committee). The members of a coordinating committee will be the Chairmen and Vice Chairmen of committees within that coordinating committee's jurisdiction; the areas of responsibility for each coordinating committee and its committees have been established by charges. Special task forces may be formed by a coordinating committee from time to time to work on specific projects.

Each committee will meet at the Interim and Annual Meetings, hopefully with the Chairman and Vice Chairman of the coordinating committee, and the responsible officer, in attendance. The coordinating committee will then convene and each committee will report its actions and recommendations; the coordinating committee will decide which recommendations should be presented to the Board of Directors. Thus the coordinating committee will be able to funnel discussion and decision up (to the Board of Directors) and down (back to the individual committees).

The Bylaws of the Association, approved on June 15, 1975, define three standing committees: Executive Committee, Nominating Committee, and Audit Committee. The other committees, approved by the Board, are:

1. COORDINATING COMMITTEE FOR PATIENT ACTIVITIES

    a. Committee on Education for Diabetics
    b. Committee on Insurance
    c. Editorial Board -- Diabetes Forecast

NOTE: "Education for Diabetics" encompasses Information for Diabetics and Diabetes Education Centers and Systems. The Editor in Chief and Assistant Editor of Forecast are members of the Coordinating Committee, and the Forecast Editorial Board functions as a committee. The Committee on Insurance will cover Third Party Payment; Affiliate insurance committee representatives will no longer be members of the Committee on Insurance.

2. COORDINATING COMMITTEE FOR PROFESSIONAL ACTIVITIES

a. Committee on Professional Education
b. Committee on Food and Nutrition
c. Committee on Advertising
d. Editorial Board -- Journal DIABETES

NOTE: Professional Education will choose the recipients of the Pfizer and Upjohn Awards. The Editor and Associate Editors of DIABETES will be members of the Coordinating Committee.

3. COORDINATING COMMITTEE FOR PUBLIC ACTIVITIES

a. Committee on Public Affairs
b. Committee on Public Education
c. Committee on Employment and Opportunities for Diabetics
d. Committee on Statistics

NOTE: "Detection" has been eliminated because it is felt the detection program is ongoing. If new data or materials are needed, a task force may be appointed.

4. COORDINATING COMMITTEE FOR RESEARCH AND SCIENTIFIC AFFAIRS (responsible to the President)

a. Committee on Research
b. Committee on Scientific Programs
c. Committee on Materials and Therapeutic Agents

NOTE: The Coordinating Committee will act as the approving body on scientific affairs, i.e., in place of the previous Committee on Scientific Affairs.

5. COORDINATING COMMITTEE FOR FUND RAISING AND ADMINISTRATION (responsible to the Chairman of the Board)

a. Committee on Fund Raising
b. Committee on Public Relations
c. Committee on Budget and Finance
d. Committee on Affiliate Associations
e. Committee on Planning and Organization

NOTE: Affiliate Associations will choose the recipient of the Outstanding Affiliate Service Award; Planning and Organization will encompass the responsibilities of Long Range Planning and Scope.

6. COORDINATING COMMITTEE FOR JUVENILE DIABETES

a. Committee for Education of Juvenile Diabetics
b. Committee on Parent and Youth Groups
c. Committee on Camps

NOTE: Other members of the Coordinating Committee will be selected representatives of specified committees.

SPECIAL NOTE: This structure was approved by the Board of Directors with the understanding that the Executive Committee would consider moving certain committees from one coordinating committee to another. The responsibilities of the individual committees will remain the same in either case; to expedite the formation of committees, the structure, as originally proposed, is listed above. Notification will be made if and when any committee is moved to a different coordinating committee.

American Diabetes Association, Inc

AFFILIATE BULLETIN

ADMINISTRATION ADMINISTRATIO

May 13, 1975 No. 284

Re: NATIONAL DIABETES COMMISSION'S SUBCOMMITTEE ON EDUCATION AND TREATMENT REQUESTS INFORMATION FROM ALL AFFILIATES

To: Secretaries and Executive Directors/Secretaries of Affiliate Associations

From: Ernest M. Frost, Ed.D., Executive Vice President

Lillian Haddock-Suarez, M.D., Co-chairperson of the Subcommittee on Education and Treatment of the National Diabetes Commission, urgently needs information regarding the educational programs and materials that are being conducted and developed by the Affiliate Associations.

Regarding your programs, the Commission would like to have the following information:

1. To whom do you address your program - patient, public, allied health professional, physician
2. Needs to which the creation of these educational programs responded
3. Population served
4. Resources (manpower, funding, physical facilities)
5. Problems that may exist in your program
6. Research programs available: (a) Development or initiation of other systems designed to meet the needs of the diabetic patients; (b) Research on Education Methodology
7. Evaluation of methods used in teaching and of the program as a whole, if any
8. Copy of your educational materials
9. Plans for the future

Please send the above information, and copies of materials if possible, to Dr. Haddock-Suarez airmail as quickly as possible since she needs responses prior to the June 2 meeting of the Commission. Dr. Haddock-Suarez's address is Department of Medicine, University of Puerto Rico School of Medicine, San Juan, Puerto Rico 00935.

EMF:cw

cc: Presidents of Affiliate Associations

1 West 48th Street New York, New York 10020 Telephone (212) 541-4310

American Diabetes Association
North Carolina Affiliate, Inc.
408 North Tryon Street Charlotte, North Carolina 28202 Telephone (704) 333-1568

May 28, 1975

Lillian Haddock Suarez, M. D.
Co-Chairperson of the Sub-Committee
on Education and Treatment,
National Diabetes Commission
% The Department of Medicine
University of Puerto Rico School of Medicine
San Juan, Puerto Rico 00935

Dear Dr. Suarez:

In response to Ernie Frost's bulletin of May 13, 1975, I respectfully submit the following information:

1. The programs of the North Carolina Affiliate of the American Diabetes Association are addressed to Patients, the General Public, Allied Health Professionals, and Physicians.

2. The needs to which the creation of our educational programs responded were documented in a 1967-1970 Regional Medical Program Diabetes Project. The project determined that 71 percent of the diabetics in North Carolina were in poor control. The poor control was a result of lack of patient education on the part of health professionals in the areas of basic diabetic regimen and nutrition.

   This lead to the development of the diabetes teaching nurse concept. The Diabetes Teaching Nurses were then established in several sites throughout North Carolina from 1970-1973.

   During that time, several significant publications were developed to meet the specific needs of the diabetics which were documented during the 1967-1970 project. The publications are:

   a. Guidelines to Diabetic Management, which is designed for physicians and provides guidelines for the basic management of the diabetic patient.

   b. Diabetes Mellitus Assessment Guides, which were designed to help the health professional in assessing the patient management in the areas of urine testing, insulin administration, oral hypoclycemic drug, hypoclycemic reactions, acidosis, foot care and diet.

ESIDENT: Kirkwood T. Shultz, M.D., **OFFICERS:** Emile Werk, M.D. President-Elect; Walter L. Horton, Jr., Vice-President. Lee wis, R.N. Secretary; Patrick Clark, Treasurer; John A. Laurents,* Executive Director
mber of the Board of Directors by Reason of Office

Member of the National Health Council

c. Illustrated Help for the Diabetic Patient, which was later revised into "Picture Pages" in a simple picture form covering five subjects: Insulin Shock, Foot Care, Urine Testing, Insulin Administration (single dose) and Insulin Administration (mixed dose).

d. Select-A-Meal, which is pictorial, color-coded meal-planning device which is designed to assist persons of virtually any intellect in adhering to a proper diet.

3. The population served by our Affiliate is the entire State of North Carolina which consists of five million people in 100 counties.

There are an estimated 150,000 known diagnosed diabetics in North Carolina and an additional 100,000 undetected.

4. Our resources consist of the following:

a. Manpower

1. Executive Director
2. Administrative Assistant
3. Fund Raising & Public Relations Director
4. Field Representative
5. Two Secretaries

Research Project Staff
1. Educational Director, R.N.
2. Staff Nurse, R.N.
3. Staff Dietitian, R.D.
4. Research Assistant
5. Secretary

b. Funding

The financial resources of the Affiliate have come primarily from a special event that has been conducted in thirty seven North Carolina cities in the form of BIKE-A-THONS.

I am enclosing a copy of our 1973, 1974, and 1975 Income and Expenses which will give you our budget breakdown. In 1974, we received a Regional Medical Program grant for $41,549 to conduct our patient education research program entitled, "Share-Your-Skills". In 1975, we have received approximately a $28,000 grant to date and have a tentative commitment for an additional $25,000 through June, 1976. This brings to a total approximately $95,000 for the purpose of developing a significant volunteer patient-teaching concept.

c. Physical Facilities

Our physical facilities consist of approximately 4,000 square feet of office space where we have adequate space for our meetings with volunteers and health professionals. Our office is located in a very accessible area in downtown Charlotte in a modern, attractive office building.

5. There are a number of problems which we have encountered in our Education Research Program, however it is premature to elaborate on these at this time since we are now evaluating the program.

6. Educational Research Program

As mentioned in Section 4, paragraph D, we have been the recipient of a Regional Medical Program grant for the purpose of conducting a patient education research program entitled "Share-Your-Skills" (SYS). The SYS program is to determine whether or not volunteers, properly trained, can provide the needed teaching re-enforcement to the health professionals. The first six months was devoted to the development of the teaching materials and the course content. The next six months dealt with selecting the sites for the test program, recruiting and training the volunteers (Community Diabetes Teachers, CDT) and to begin the actual teaching of the referred patients. (See page 14, sequence of events) I am enclosing a copy of the original application to the North Carolina Regional Medical Program for the three year project, this application will describe in detail our time table and plan of action and I believe will give you a fairly thorough understanding of the project. Our project staff feels that we have learned a great deal about the use of volunteers in patient teaching. The next few months will be devoted to assessing the project activities and will ultimately result in the publication of several significant papers on the project.

Since most Diabetes Associations have expressed an interest in developing some kind of volunteer teaching program, the findings of this study will be particularly significant in the establishment of such programs throughout the country.

7. Evaluation

Since our main teaching program centers around the "Share-Your-Skills" Project it would be premature for us to express any evaluation at this time.

8. Educational Materials

   a. Select-A-Meal
   b. Assessment Guide
   c. Guidelines to Management
   d. Picture Pages (5 subjects)

9. Plans For The Future

   a. We are in the process of developing a state-wide teaching program for health professionals. This will be done in cooperation with the North Carolina AHEC. The role of the Association will be to develop and furnish the course content and identify the personnel that are capable of teaching the program throughout the state. AHEC'S role will be to fund the actual teaching and assist in promoting the program. One immediate objective of this program is to see that all public health nurses take the course as one of their continuing educational requirements. We feel that in this way we can reach the majority of the indigent diabetics with basic knowledge about managing their diabetes.

   b. We are working closely with the State Department of Nutrition in helping to establish Dietitians and Nutrition consultants in all health departments throughout the State. In this area the Diabetes Associations role is that of an advocate for the proper and effective delivery of the Nutritionists assistance to the indigent diabetics throughout the state.

   c. This year our Association will conduct at least four Regional Professional meetings designed to bring dynamic professional programs on diabetes, within the geographic reach of all the physicians in the state. A series of four programs are now planned for September, November, February and May. It would be interesting to note that about half of the expenses of these meetings will be covered by various drug companies and there is a good possibility that any additional expenses with regard to speakers, etc., would be picked up by the Regional AHEC.

   d. With the advent of third party payment for patient teaching we are now developing a strong program to encourage all hospitals to develop a diabetes teaching staff which would consist of at least one diabetes teaching nurse. Hopefully the staff or teaching nurse would be available on an out-patient basis to the physicians in the community so that their patients could be referred to regularly scheduled classes.

AMERICAN DIABETES ASSOCIATION, NORTH CAROLINA AFFILIATE, INC.

I believe that many of the things that we are trying to do to improve the well being of the diabetic are available to us in a vast array of resources which simply need to be co-ordinated. I have a basic philosophy that the Diabetes Association should not provide any services that could or should be provided by existing agencies. It is in that area that it is becomes vitally important for the Diabetes Association understand and assume the role of a strong advocate.

The answers contained in the letter are but a mere glimpse of what is going on in the area of diabetes education in North Carolina.

I sincerely hope that this information will be helpful to you and your Sub-Committee. Please let me know if I can be of service.

Best regards,

John A. Laurents
Executive Director

JAL/jp

cc: Ernest Frost,Ed. D, Executive Vice President ADA
Kirkwood T. Shultz, M.D. President, North Carolina Affiliate
Joyce Kortman

AMERICAN DIABETES ASSOCIATION
NORTH CAROLINA AFFILIATE, INC.

INCOME	ACTUAL 1973	ACTUAL 1974	BUDGET 1975
Contributions	$ 13,065	$ 12,044	$ 15,500
Special Events	43,708	66,747	73,000
Other Revenue			
Membership Dues	526	811	5,000
Program Fees	11,034	1,371	2,000
Publication Sales	201	4,441	6,000
Regional Medical Program	- - -	41,549	28,000
Camp Fees & Contributions	5,115	15,649	16,000
Sub-total	73,649	142,612	145,500
NEW INCOME			
CFC Campaign	- - -	- - -	15,000
SYS Foundation Grants	- - -	- - -	20,000
Special Gifts Campaigns	- - -	- - -	77,000
New income sub-total			113,000
GRAND TOTAL	$ 73,649	$142,612	$257,500

EXPENSES	ACTUAL 1973	ACTUAL 1974	BUDGET 1975
Public Education	$ 3,140	$ 10,682	$ 14,000
Professional Education	3,326	6,296	10,000
Patient Education	18,621	33,057	39,500
Research	500	41,536	98,000
Community Service	6,001	16,407	22,000
Total Program	31,588	107,978	183,500
Management	4,994	16,659	18,000
Fund Raising	9,078	28,674	30,000
	14,072	45,333	48,000
ADA Support	(5%) 2,409	(10%) 7,474	(15%) 26,000
	$ 48,069	$160,785	$257,500

American Diabetes Association
SOUTHERN CALIFORNIA AFFILIATE, INC.

Sansum Medical Research Foundation, 2219 Bath Street,
Santa Barbara, California 93105

May 22, 1975

Lillian Haddock-Suarez, M.D.
Department of Medicine
University of Puerto Rico
School of Medicine
San Juan, Puerto Rico 00935

Dear Dr. Haddock-Suarez:

I received a copy of your request for information concerning education programs and materials as relayed by Mr. Frost of the ADA. I made a tape recording of our testimony before the National Commission which we have had transcribed; I am enclosing a photocopy of that transcript. To answer your specific questions relative to our program here in Santa Barbara:

1) Our program is addressed primarily to the patient.

2) The needs to which the creation of these educational programs responded - I am enclosing a copy of a short history which I wrote as part of a grant request concerning the history of treatment of diabetes in Santa Barbara.

3) Population served includes the local population of Santa Barbara plus a large number of patients who come from Southern Nevada, the San Joaquin Valley, and the coastal area of California from Salinas to Orange County.

4) Resources - Our current program has no lack of manpower or physical facilities. We have a pool of nurses who are capable of giving the course, and we have more dietitians who are willing to give the course than we can use at the present time. Physical facilities are also no problem; they are supplied by the hospital. Our basic problem is that of funding. I covered this in my testimony.

5) Problems that may exist in your program - The main problem is that of funding; however, I do believe that it should be possible in the future to make this program self-sustaining within the community without outside support.

6) Research programs available - We are currently using the patient multiple choice test developed at the Vanderbilt

University. We are modifying this because it does not contain enough questions about diet. I am not at all sure that this is the best way to evaluate what we are doing; perhaps a more realistic approach would be to determine what the patient's overall control was before he took the course and then for an equal period of time after the course.

7) Evaluation of methods used in teaching and of the program as a whole - We have done none of this as yet.

8) Copy of the educational materials - I gave a copy of our packet to Dr. Crofford to be used as he saw fit by the Commission. Enclosed is a packet for your information.

9) Plans for the future - I have made an application to the Hearst Foundation for support for the next two years. If this is forthcoming, we plan to have the course given on a weekly basis.

I hope this information will be helpful to you.

I spoke to Linda Bryers yesterday on the phone, and she tells me she is sending you a summary of all the programs in the Southern California area. Good luck to you in your further work on the Commission.

Sincerely yours,

Lowell L. Sparks, M.D.

p.s. I am enclosing a copy of the cost accounting I did for the Hearst Foundation proposal. In most areas in Southern California, one can get volunteer coordinators for a once per month course. I have found it impossible though to get volunteers for a continuously ongoing program each week.

LLS:sk

Enclosures

American Diabetes Association
SOUTHERN CALIFORNIA AFFILIATE, INC.
4849 VAN NUYS BLVD., SUITE 200, SHERMAN OAKS, CALIFORNIA 91403 — (213) 872-1385 or 986-6272

May 30, 1975

Lillian Haddock-Suarez, M.D.
Co-Chairperson, National Diabetes Commission
Department of Medicine
University of Puerto Rico School of Medicine
San Juan, Puerto Rico, 00935

Dear Dr. Haddock-Suarez:

When the National Diabetes Commission visited Southern California, in May of this year, I attended both sessions of the Commission Hearings. I found them highly informative and beneficial. I also realized, in a most profound way, that the problems we have encountered as a Southern California Affiliate of the American Diabetes Association are shared by the rest of the nation.

Per your request for information and materials developed and utilized by this Affiliate, I have enclosed a complete set of materials and guidelines relevant to the on-going programs conducted by this Affiliate.

I have worked with all programs relating to or involved with education for the past year under the direction of Mr. D. Rodney Lee, Executive Director of the Southern California Affiliate. Most recently I have worked under the directorship of Mr. Lawrence Werner, Director of Administration and Acting Director of Field Service for the Southern California Affiliate. The information regarding programs is compiled in a report form for easier reading.

Sincerely,

Linda Bryers

Linda Bryers
Program Representative

LB:sg
encl.

American Diabetes Association
SOUTHERN CALIFORNIA AFFILIATE INC

August 4, 1975

Lilian Haddock, M.D.
Department of Medicine
University of Puerto Rico
School of Medicine
San Juan, Puerto Rico, 00936

Dear Dr. Haddock:

Thank you for your response regarding the American Diabetes Association Southern California Affiliate programs and evaluations. We would feel honored indeed, to be included in the State of the Act on Education. Please note, I have made certain additions and up-dates since the first draft I sent.

Dr. Lowell Sparks is involved with the teaching program at Santa Barbara Cottage Hospital. There are 20 additional programs however, some of which are just as varied. The latest addition to our teaching schedule is an Adolescent Teaching Program which incorporates the same Guidelines used for the previous programs while emphasizing those topics of interest and particular adjustments for the young diabetic.

The Patient Education and Community Services Program is chaired by Laurence Seigler, M.D. and the Professional Education Committee is chaired by Mayer Davidson, M.D. Thank you again for your intense interest in diabetes. You are representing so many of us around the country and we eagerly await the results from the National Commission on Diabetes.

Sincerely,

Linda Bryers

Linda Bryers
Program Representative
American Diabetes Association
Southern California Affiliate, Inc.

LB:sg

American Diabetes Association
SOUTHERN CALIFORNIA AFFILIATE, INC.
4849 VAN NUYS BLVD., SUITE 200, SHERMAN OAKS, CALIFORNIA 91403 — (213) 872-1385 or 986-6272

PATIENT EDUCATION PROGRAMS

1) Type of Program: Out-Patient Teaching Program

2) Needs: The American Diabetes Association of Southern California sponsors twenty teaching programs throughout Southern California. The guidelines and locations of these programs are enclosed. The Out-Patient Teaching Program services the needs of diabetics after they are released from in-patient service. These Programs attempt to provide a resource center for physicians for their patients. Principles of self-care and management in Diabetes Mellitus are taught.

3) Population Served: The twenty existing teaching programs extend North to Santa Barbara, South to San Diego and East to Loma Linda. The number of teaching programs within a given city, or area, is determined by the population within that area. Under normal circumstances, in those areas not densely populated, A.D.A.S.C. has found it wise not to conduct more than one teaching program within an eight to ten mile radius.

4) Resources: The Program is taught within the medical facility by physicians, nurses, and dieticians of that hospital or clinic. Normally a fee of from $10.00 to $20.00 is charged of the patient, except where the fee is a hardship. These checks are made payable to the hospital. The hospital, in turn, pays the teaching staff between $5.00 and $7.50 an hour overtime. Since ten hours of instruction is given, if each class consists of between ten and fifteen patients, the Program supports itself financially. All other questions pertaining to resources are included in the guidelines.

5) Problems: The one major problem that exists in the Teaching Programs is proper objective evaluation of the effectiveness of the instruction. At the National Diabetes Commission hearings, I noticed that all Affiliates seem to be concerned with this same problem. This Affiliate offers a pre and post test for evaluation but this, in my opinion, is not the best or most effective means of evaluation. There seems to be no easy answer to this problem. I have kept in touch with many of the Affiliates and Programs throughout the country and most Teaching Programs offer a pre and post examination.

6) Research Programs: The Diabetes Teaching Nurses of Southern California, together with the Professional Education Committee of A.D.A.S.C. are drawing up criteria for education methodology, as regards the Teaching Programs.

7) Evaluation: Perhaps one of the most objective evaluations of the Program as a whole is the number of patients attending a program. Over the past year A.D.A.S.C. has educated two thousand patients through the Out-Patient Teaching Program. Each program evaluates its own methods and successes by conducting teaching personnel evaluation sessions. The Patient Education

Comm. of A.D.A.S.C. has recently decided to audit each program twice a year thereby ensuring that proper methods and guidelines are followed.

8) Materials: All materials are enclosed.

9) Plans: The Teaching Programs are fulfilling a need in the community which is rapidly expanding. Three new programs will be opening in the next several months. I expect that within the next year A.D.A.S.C. will sponsor between thirty and forty Teaching Programs in the Southern California area. My plans include continuing working for more efficient and productive means of evaluation.

1) Type of Program: Public Seminars

2) Needs: Although this is termed an Annual Public Seminar, the education, to a great degree is directed at the diabetic patient. An Annual two-day Public Seminar, such as A.D.A.S.C. has sponsored, brings together the leading specialists in diabetes in the Southern California area for a major and comprehensive educational event which could not be experienced or paid for by any other means.

3) Population: The past two Annual Seminars have been directed at the entire Southern California area. This year the Seminar will be directed at the greater Los Angeles area and the surrounding vicinities. The 1974 Public Seminar drew a crowd of over 1,350 persons for the two-day event. Tickets were $3.00 apiece, $5.00 a family, or $1.00 for Medi-Cal. The Patient Education Committee feels that with more consentrated publicity efforts the same amount of people can be educated from Los Angeles and the surrounding areas.

4) Resources: A report of the 1974 Public Seminar is enclosed.

5) Problems: There are no problems that exist within the Program itself. Because of the huge geographic area it is difficult for people to travel from one end of Southern California to the other for this two-day event. Therefore it has been suggested by Mr. Lawrence Werner and has received favorable response from the A.D.A.S.C. committees to have a series of regional seminars, still maintaining the high quality of education while allowing easier access to each geographic region.

6) Research Programs: One Regional Seminar has been attempted in a very small area with no amount of extended publicity. Two hundred and fifty people attended this Seminar which lasted several hours on one evening. The methodology of education is dictated by the Patient Education Committee.

7) Evaluation: The evaluation of the Public Seminars from the Patient Education Committee has been that the Seminar provides a high quality of patient education at a small fee that is very beneficial. The response from physicians whose patients have attended has been very good. Many patients also have responded very favorably.

8) Materials: All reports are enclosed.

9) Plans: As stated previously, the future plans of Public Seminars are to hold them twice a year as a Regional Seminar.

1) Type of Program: Student Career Counseling Program

2) Needs: A "Career Counseling" Brochure has been made available through A.D.A.S.C. to help guide students into careers which are open to diabetics.

3) Population Served: Many schools, individuals, and nurses are utilizing these brochures throughout Southern California. The Los Angeles School System has adopted this brochure into their "special counseling program" for diabetic students. 130 schools are now utilizing these brochures on an on-going basis through the L.A. School System.

4) Resources: These brochures must be adapted by the School System, thereby exposing each diabetic student within the System to a "career counseling" brochure.

5) Problems: None.

6) Research: There has been no research done at this time.

7) Evaluation: The Los Angeles School System reports that this program has been highly successful so far.

8) Materials: The "brochure" is enclosed.

9) Plans: The plan for the future is to expand this program into every school district in Southern California.

1) Type of Program: Summer Camp

2) Need: The Summer Camp, Camp Chinnock, renamed recently for the lately deceased Camp Director of some twenty years, offers the same camping experiences to children with diabetes, aged seven through fifteen, as do other camps for non-diabetic children. Children are offered this experience regardless of their parents' ability to pay.

3) Population Served: Diabetic children, most of whom come from the Southwest Region of the United States.

4) Resources: The Camp is owned by the Y.M.C.A. and leased to the A.D.A.S.C. Affiliate on a one month basis. All manpower for the Camp itself is arranged by the Camp Director, Dr. John Mace, of Loma Linda University.

5) Problems: The only problems at the present time are those dealing with guidelines for financial assistance. These guidelines are being drawn up and evaluated by the Camp Committee.

6) Any research done on education methodology would be worked on through the Camp Committee. No research has been done on methodology of education at this time.

7) Evaluation: In 1974 two hundred and eight youngsters attended Camp and of those youngsters, eighty-seven were subsidized in part or whole by A.D.A.S.C. The Camp holds a maximum of two hundred and twenty children for the Summer session.

8) Materials: All materials are enclosed.

9) Plans: There are no plans at the present time to alter or change the Summer Camp Program.

1) Type of Program: Educational Unit Meetings

2) Need: The educational meetings service a need in the community for those people seeking additional education regarding diabetes. Most Unit meetings are conducted monthly by local physicians in the area.

3) Population Served: Each Unit services anywhere from one city to an entire county. The meetings service anywhere from twenty-five to over one hundred persons every month.

4) Resources: Generally educational meetings are held in a hospital classroom or large office building conference room donated for this event once a month. Each Unit has a Chairman and a Medical Advisor who are in charge of recruiting a physician/speaker once a month.

5) Problems: The A.D.A.S.C. Affiliate has found a problem in educational meeting mainly because we have imposed this program in every unit area. In the past year A.D.A.S.C. has realized that this should be an optional program. Many of the education meetings are composed mainly of elderly persons. The plannong and coordination for these meetings drain the efforts of the parents and younger groups who feel they do not basically benefit from these meetings. In addition, A.D.A.S.C. has found it difficult to maintain a high quality of professional speakers for monthly educational meetings.

6) Research Programs: The Regional Seminars would take the place of monthly educational meetings while restoring the high quality of education into the Program. By conducting Regional Seminars with carefully selected spokesmen on a bi or tri Annual basis, each Unit area would improve not only qualatatively but quantitatively as well. Normally each educational Unit meeting offers an hour of instruction. The Regional Seminar would offer anywhere from six to eight hours of instruction. Therefore, if Regional Seminars are held on a bi or tri Annual basis, the amount of educational time is also expanded.

7) Evaluation: Because Regional Seminars would be planned through the A.D.A.S.C. office, this would allow the vitality of the parent's and youth groups to be directed into programs more appealing to them. The unit educational meetings, on the whole, have not been a success and unless transformed into Regional Seminars, I see no future plans for such educational meetings.

PUBLIC EDUCATION PROGRAMS

1) Type of Program: Library Resources Program

2) Needs: This program is good for youth groups to become involved. This is a short term project. Volunteers canvas the community libraries for pamphlets, books and bibliographies on diabetes. The objective of this program is to expose libraries to the latest books and pamphlets available at each library and to encourage the purchase of those books recommended by A.D.A.S.C.

3) Population Served: Each group defines its own boundaries according to the area they wish to canvas.

4) Resources: This Program is carried out through volunteer efforts. There are no other sources needed.

5) Problems: No problems at this time.

6) Research Programs: Not applicable at this time.

7) Evaluation: This is a very new program and has only been attempted several times to this date.

8) Materials: A copy of all materials is enclosed.

9) Plan for future: This program should be expanded into all Southern California areas. Because the duration of this program is limited, this is a good one-time project to give to a group who does not desire an on-going program.

1) Type of Program: Health Fairs

2) Needs: The concept of Health Fairs in a community is a good and beneficial concept. The practical administration of health fairs, however, most usually fails in its attempt at community awareness. The greatest need for health fairs exists in low-economic, ethnically deprived areas where the majority of the community is not being treated by private medical care. This Program is the only way one has of educating and promoting awareness of health in some areas.

3) Population Served: Each health fair is aimed at a specific population area. It is the policy of A.D.A.S.C. to only become involved in very large, reputable fairs that have participation from other major health organizations.

4) Resources: A.D.A.S.C. does not sponsor or coordinate any health fairs. We merely serve as a participant. These health fairs are all manned by volunteers of the Association.

5) Problems: There are two major difficulties with health fairs. Many fairs are local group-sponsored with very poor attendance. The staff energy and the production of materials to be distributed is too great in ratio to the attendance.

6) Research Programs: Regarding this program, no other system has been developed or initiated to distribute public information and education to the community.

7) Evaluation: A.D.A.S.C. has participated in approximately seventy health fairs in the last year. This, by far, is our least successful program. A.D.A.S.C. would discontinue health fairs alt gether except that in some low-economic communities this is the only means of health education available.

8) Materials: Materials are enclosed.

9) Plan for future: The plan for the future in regard to health fairs is to expend as little time and energy in this program as possible.

1) Type of Program: Film Library

2) Needs: Films are available on a very limited basis to groups for public education and patient education.

3) Population Served: The Southern California area.

4) Resources: A list of those films available is included.

5) Problems: The problems in this program are obvious. An Affiliate must be supplied with more than four films to effectively service the Southern California area. There is usually a several month waiting list on most films.

6) Research Programs: No research programs have been done at this time.

7 & 9) Evaluation and Plans: The Patient Education Committee is recommending a line item in next year's budget to purchase and maintain a current film library.

1) Type of Program: Jackie Robinson Center

2) Needs: The Jackie Robinson Center is a total health care facility which services the low-economic area of Pasadena. A.D.A.S.C. mans an education table twice a month. Once a month, a film is shown to the public in an attempt to promote awareness of diabetes in the community.

3) Population: A.D.A.S.C. services anyone who needs educational information or referral through the Center. The area itself is comprised of basically black and low-income persons.

4) Resources: The Center is operated and paid for by the city of Pasadena. Volunteers man the education tables.

5) Problems: There are no problems at this time.

6) Research Programs: A community Center seems to service the needs of the public much more professionally and accurately than the traditional health fairs.

7) This program is too new to do a thorough and accurate evaluation.

8) Materials: The same materials are used for this program as the Literature Packet Program.

9) Future Plans: A.D.A.S.C. eventually plans to do no-cost screening and detection in the Center for anyone too poor to afford adequate medical care.

1) Type of Program: Screening and Detection

2) Needs: Because as many as three million persons may have diabetes and not be aware of the disease, A.D.A.S.C. feels a responsibility in the area of Screening and Detection.

3) Population Served: The population serviced by our screening and detection program is unlimited though usually eighty to one hundred people are seen through each clinic.

4) Resources & Problems: The problems of this Program are integral to the resources of the Program itself. Because the A.D.A.S.C. Affiliate Board of Director's allows no urine testing, due to the inaccuracy of such tests, A.D.A.S.C. sponsors two hour post-prandial blood tests with a three day high carbohydrate diet. Each time a screening and detection clinic is set up, we must recruit the services of a hospital or physician's laboratory to run the tests. The screening is done entirely by volunteers. It is a problem to recruit hospital cooperation for blood testing.

6) Research Programs: No extensive research programs have been done at this time.

7) Evaluation: Upon recommendation of the Detection Committee, the Board of Directors has passed a highly specific, comprehensive screening and testing procedure. This procedure is enclosed.

8) Materials: A copy of all screening and detection materials is enclosed.

9) Future Plans: The Detection Committee is researching the alternative of having a number of physicians do an on-going blood testing clinic every month through their individual laboratories. This, in effect, would solve the problem of recruiting hospital laboratories for blood testing.

1) Type of Program: School Information Program

2) Needs: The objective of this program is to inform interested students, teachers, and other members of the staff about what Juvenile Diabetes is and what should be done in the event that a diabetic student should suffer a hypoglycemic reaction.

3) Population Served: Southern California.

4) Resources: This Program is carried out entirely by volunteers.

5) Problems: There are no problems at this time.

6 & 7) Research Programs and Evaluation: This Program is relatively new and therefore no evaluation has been done on its effectiveness at this point.

8) Materials: All materials are enclosed.

PROFESSIONAL EDUCATION

1) Type of Program: Professional Section Education

2) Needs: This Program responds to the needs of physicians and allied health professionals continuous education in the latest developments of research and treatment of Diabetes Mellitus.

3) Population Served: Southern California. Because the meetings are held at the Los Angeles County Medical Association, the distance prohibits some physicians from taking advantage of this Program.

4) Resources: A small rental fee is paid for the use of meeting facilities at L.A.C.M.A. In addition, each physician/speaker is paid $150.00 honorarium plus traveling expenses. One of the four meetings is entitled the C.O.P.P. Lecture, for which a speaker of international importance is asked to participate Pharmacuedical companies may be approached to help defray the expense.

5) Problems: None

7) Evaluation: Evaluation of this program and the decision on who is asked to speak is made entirely through the Professional Section Committee.

9) Plans: No alterations or changes in this Program are anticipated.

1) Type of Program: Professional Symposium.

2) Needs: The Professional Symposium responds to the desires of the Professional Education Committee to have a weekend Professional Symposium for all physicians and allied health professionals interested in continuous education.

3) Population Served: All physician and allied health professionals in the Southwest Region of the United States.

4) Resources: The program of the Professional Symposium is designed by A.D.A.S.C.'s Professional Education Committee to take advantage of the most up-to-date developments and the appropriate speakers thereto in the determination of the program subject matter.

5) Problems: The one major problem in the 1975 Professional Symposium was

that the Professional Education Committee felt that the allied health professionals should have separate workshops from the physicians.

6) Research: No research has been done on this Program.

7) Evaluation: The Professional Education Committee is pleased with the concept of the Professional Symposium and wishes to continue it.

8) Materials: A brochure of the program is enclosed.

9) Future Plans: No alterations in this Program are anticipated.

FUTURE PLANS

1) An In-Service Training Program is anticipated in the next year. This Program would educate professionals in teaching self-care and management of Diabetes Mellitus. The In-Service Training would serve the entire Southern California area.

2) A Speaker's Bureau is being formed for the purpose of speaking to professional groups regarding the American Diabetes Association and how the Association relates to patient and Professional groups.

3) A pilot One-to-One Volunteer Program is being conducted by A.D.A.S.C. at Pacific Hospital, in Long Beach. The objective of this program is to shorten the length of time it takes for the diabetic to overcome the trauma associated with the onset of a major chronic disease. Hopefully, the volunteer visitor will act as a positive example of what the diabetic may look forward to with proper treatment and control. I see the future of this program being one of the brightest and most volunteer-oriented Programs of A.D.A.S.C. There are at least ten hospitals that are waiting for the One-to-One Volunteer Program to extend out of its pilot stage into a full-fledged Program. A copy of the preliminary guidelines and objectives are enclosed.

4) In addition one other Program is in the beginning stage. Within the next year In-Service Hospital Packets will be distributed to hospitals throughout the Southern California area with the objective of providing basic educational material regarding diabetes. When a new patient is admitted an In-Service Hospital Packet will automatically be disbursed to the patient. These Packets will be separated into three categories. One Packet will be composed of material for children and parents of children, one Packet for insulin-dependent adults, and one Packet for mature-onset diabetic patients on oral medication or diet alone. There are already numerous hospitals waiting for these Packets. A sample Packet is enclosed.

APPENDIX 2

DIABETES EDUCATION CENTERS, PROGRAMS, AND SYSTEMS IN THE UNITED STATES

UNIVERSITY OF TEXAS MEDICAL BRANCH

Diabetes Education Centers, Programs, and Systems in the United States

John A. Colwell, M.D., Ph.D.

Recent estimates suggest that there are about ten million diabetic patients in the United States. If their education and care were equally divided between the 2,000 professional members of the ADA, each member would be responsible for about 5,000 patients. Or, if we assumed that their education and care is equally divided between 5% of the 200,000 practicing physicians in the United States, each would be responsible for about 1,000 patients. Clearly, there is a public health problem in diabetes which is not being met by our present population of physicians.

One method of dealing with the problem of education of this large population of diabetics has been the development of Diabetes Education Centers. In 1974, a Committee of the ADA, the Committee on Diabetes Centers and Systems, chaired by Dr. T. Frank Williams undertook to acquire data on the geographic scope, support, and staffing in centers which have dealt with this problem. This survey was prompted by the recognition by the Committee that background material of this type should be of critical importance in planning funding for such centers in the future.

For the purposes of the study a Diabetes Education Center was defined as a major central area (hospital, clinic, institution, health center, or group of physicians) where a systematic program of education for the diabetic patient is undertaken. Frequently, this program will consist of a series of 4-5 classes for diabetics and their families, given by registered nurses and dieticians, supplemented by a comprehensive medical examination in some clinics. While it is freely admitted that the sample is small, the study provides useful information for those considering staffing and funding of such centers.

Sixty-two questionnaires were distributed to the affiliates of the ADA and other groups active in diabetic education. Forty-nine (76%) were returned.

A diabetes education center was in existence in 32 (65%) of the respondents. Centers could be divided into four major types: regional (7), a city or county hospital (4), a University Hospital (6), or a private hospital (15). It was estimated that these 32 centers could serve about 42,500 patients per year, less than 1/200 of the known diabetics in the United States.

The geographic distribution of these centers is shown in Figure 1. The coordinators and the locations of the centers are given in Table 1. One of the oldest programs is that of Dr. Donald Etzwiler in Minnesota. This center acts as a referral site for the State of Minnesota and has a long and successful experience in the education of patients, families, physicians, and allied health personnel. A second large regional program is that of Dr. Lillian Haddock in Puerto Rico. Here, using an outreach approach through Public Health and Regional Medical funding, she has an active program in diabetes education.

A large city hospital program is that administered by Dr. Jack Davidson in Atlanta, Georgia. One of the largest and most successful programs, it has amassed impressive statistics on the delivery of proper educational materials and good medical care to a primarily indigent, southern black population. In Los Angeles, at the Los Angeles County Hospital, Dr. Leona Miller has had outstanding success in utilizing nurse clinicians, providing a medical "hot-line," 24 hours a day, and coordinating emergency room care with an education program in a large city hospital.

University hospital programs generally tend to be smaller and more oriented towards student and house staff education and research. In Charleston, South Carolina, a University hospital-based program serves as a focal point for educational activities and nurse-clinician training. Here, the core of the program is five nurses from different disciplines: Medical School, Public Health Service, Veterans Administration, and Regional Medical Program.

Private hospital programs generally serve a small group of patients, usually those referred by the practicing physicians of that hospital. Continuity of education is attempted by follow-up in the physicians' offices.

Support for the various programs has come from a variety of sources: hospital (18), private fees (13), R.M.P. (4), medical school (3), and other sources such as endowments, donations, and public health services (4). In most cases, support from a variety of sources is necessary; third party payment is, in general, lacking.

Some estimates on staffing and costs are given in Table 2. Regional centers can accommodate at least 3,000 patients per year with a staff of three nurses, two dietitians, one secretary, and other part-time employees (social worker, physician, podiatrist). Total costs are about $110,000 yearly, and average $37/patient/year. The other programs are scaled down accordingly, but the average cost per patient remains between $40 to $50 yearly. In view of the escalating costs of in-patient care for a diabetic, these out-patient costs do not appear excessive, assuming that these programs result in diminished hospitalizations.

There are data which indicate that these programs can result in significant savings to the patient. In Los Angeles, Dr. Leona Miller (1) demonstrated that her program resulted in a decrease in average hospital stay from 5.6 to 1.7 days yearly for diabetics, a savings in hospital costs of over $1,000,000, and an annual savings per patient of $588 per year.

In Memphis, Tennessee, Dr. William Runyan (2) has combined diabetes education with a chronic care program using nurse clinicians in public health clinics. In his program, twenty public health nurses in sixteen neighborhood clinics see 3,000 diabetic patients yearly. In a five-year analysis, he found that health care costs fell from $518,000 to $286,000 annually. Hospital out-patient visits fell from 7,859 to 2,541 and emergency room visits from 255 to 44 yearly. Hospitalization for diabetes fell by 49%, ketoacidosis and infection by 61%, and peripheral vascular disease by 68%.

These education programs inevitably began to involve other health professionals in the delivery of primary care to diabetics. In Atlanta, Dr. Davidson has daily clinics manned entirely by nurses, where a single nurse clinician will care for 15-20 diabetics daily. In Charleston, South Carolina, a single V.A. diabetes nurse clinician, working with medical supervision and dietary help, is responsible for sixty insulin-requiring diabetic subjects, all of whom were originally hospitalized for diabetes. After one year, this nurse had readmitted only four patients, mean fasting plasma glucose fell from 358 to 150 mg%, and an approach to ideal weight was seen in all but a few overweight or underweight patients.

From this small survey, then, a few tentative conclusions may be made:

1. Diabetes Education Centers are available.

2. They are not currently filling the apparent needs of a majority of diabetics. It is likely that the indigent population needs the most assistance in this regard.

3. Expenses are justified by results seen.

4. Funding presently is from a variety of sources. In the future, creation of such important sources as third party payments and new federal programs such as H.S.A., will be critical. Expansion of present efforts using public health departments, V.A. Hospital, state agencies, and other interested sources of funding is needed.

5. Education Centers can serve as bases for the development of innovative programs in the delivery of health care by allied health professionals under the supervision of a physician.

A major problem which the Commission faces is the creation of a plan which will allow for the implementation of its recommendations in a thoughtful, orderly, productive, and frugal fashion. This can best be accomplished by identifying groups of responsible individuals, with interdisciplinary representation, on a regional basis. With the evolving new federal legislation creating H.S.A., this can best be accomplished on a state-wide basis with funding from a variety of federal, state, and local sources.

TABLE 1

DIABETES EDUCATION CENTERS

Region	Coordinator	City
Diabetes Research & Education Hospital	B. Boshell, M.D.	Birmingham, Ala.
Joslin Clinic	R. Bradley, M.D.	Boston, Mass.
N.C. Diabetes Education Pgm.	J. Feldman, M.D.	Durham, N.C.
Cleveland Clinic	P. Schumacher, M.D.	Cleveland, Ohio
Diabetes Education Center	D. Etzwiler, M.D.	Minneapolis, Minn.
The Diabetes Center	M. Rallison, M.D.	Salt Lake City, Utah
Diabetes Education & Detection Program	L. Haddock, M.D.	San Juan, Puerto Rico
City or County Hospital		
Diabetes Day Care Center (Grady Hosp.)	J. Davidson, M.D.	Atlanta, Ga.
Boston City Hospital	R. Knopp, M.D.	Boston, Mass.
Los Angeles County Hosp.	L. Miller, M.D.	Los Angeles, Calif.
San Bernardino County Hosp.	A. Jones, R.N.	San Bernardino, Calif.
City of Memphis Hosp.	J. Runyan, M.D.	Memphis, Tenn.
University Hospital		
Medical University of S.C.	J. Colwell, M.D.	Charleston, S.C.
Univ. of Va. Hospital	B. Finn	Charlottesville, Va.
Univ. of Mo. Diabetes Detection & Education Ctr.	R. Guthrie, M.D.	Columbia, Mo.
Vanderbilt Diabetes Education Center	A. Graber, M.D.	Nashville, Tenn.
Loma Linda Univ. Diabetes Ctr.		Sherman Oaks, Calif.
Georgetown Univ. Hospital	E. Rice, R.N.	Washington, D. C.

TABLE 1

Private Hospitals	Coordinator	City
St. Lukes & St. Alphonsus Hospital	W. Dickey, M.D.	Boise, Idaho
City of Hope	S. Bradley, R.N.	City of Hope, Calif.
Grandview Hosp., Kettering Hospital, etc.	E. Russell, R.N.	Dayton, Ohio
Chas. Conway Diabetes Teaching School	G. Heffner, M.D.	Fort Lauderdale, Fla.
United Hospital	E. Haunz, M.D.	Grand Forks, N. Dak.
Indianapolis Hospitals	J. Shackey	Indianapolis, Ind.
Children's Mercy Hospital	J. Ginn, M.D.	Kansas City, Mo.
St. Francis Hosp. of Lynwood	C. Provo, R.N.	Lynwood, Mass.
St. Patrick Hospital	J. Johnson	Missoula, Mont.(Center)
Shadyside Hospital	T. Danowski, M.D.	Pittsburgh, Pa.
Maine Medical Center	G. Carpenter, R.N.	Portland, Maine
Reading Hospitals	R. DeTurk	Reading, Pa.
Northridge Hospital		San Fernando, Calif.
Presbyterian Hospital	R. Alexander, M.D.	San Francisco, Calif.
Waltham Hospital	M. McSweeney	Waltham, Mass.
Presbyterian Intercommunity Hospital	R. Poucher, M.D.	Whittier, Calif.

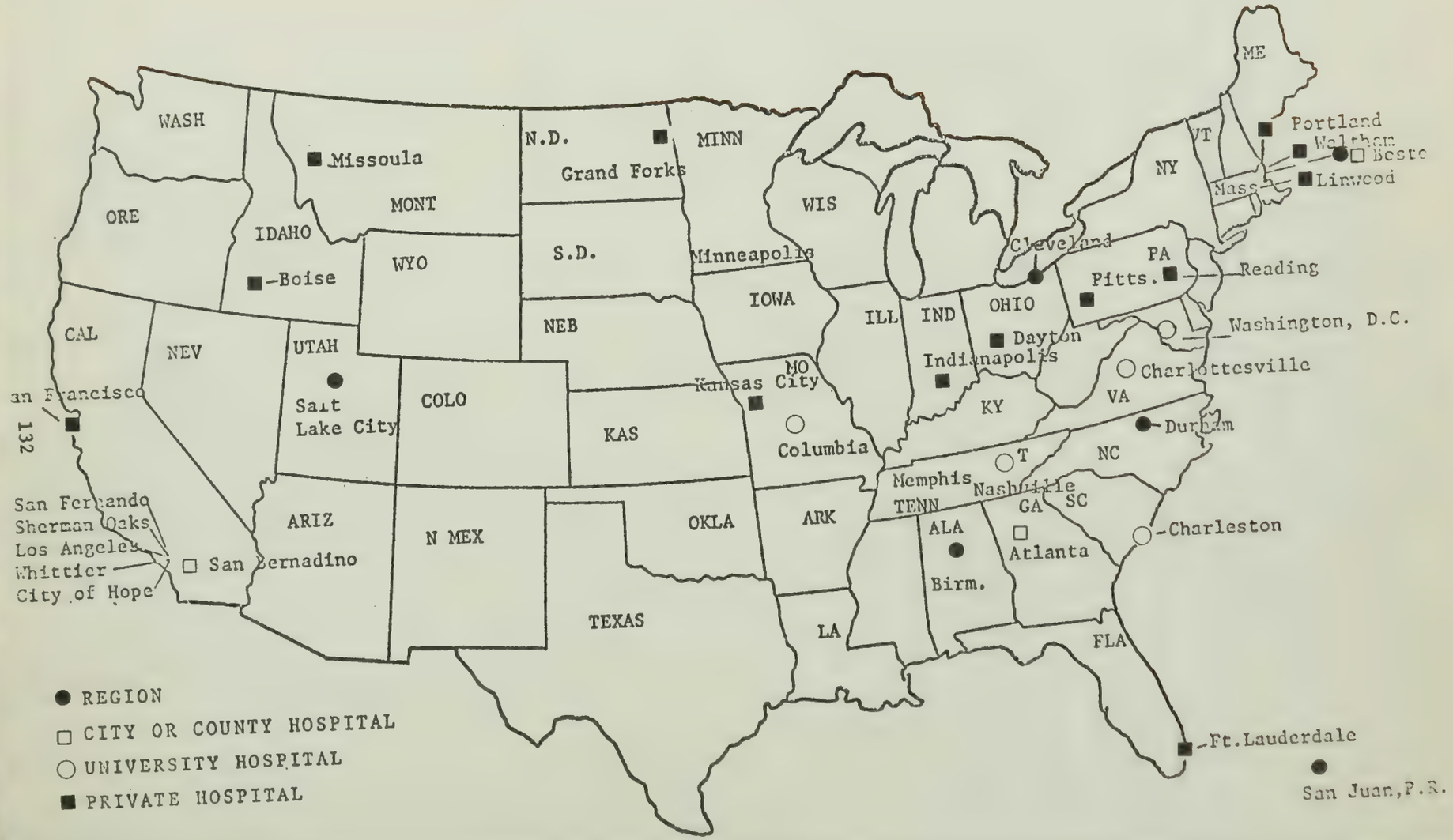
TABLE 2

COSTS: DIABETES EDUCATION CENTERS

	Number of Pts/yr	N	D	S	O	Costs (X $1000) Sal	S&Eq	Tot	S/pt/yr
Regional	3000	3	2	1	1	92	18	110	37
City or County Hospital	2000	3	1	1	.5	62	12	84	42
University Hospital	1000	2	1	.5	.25	42	8	50	50
Private Hospital or Clinic	500	1	.5	.25	-	20	4	24	48

FIGURE 1

DIABETES EDUCATION CENTERS



REFERENCES

1.) Miller LV, Goldstein J: More efficient care of diabetic patients in a county-hospital setting. N Engl J Med 286:1338-1391, 1972

2.) Runyan JW, Phillips WE, Herring O, et al: A program for the care of patients with chronic diseases. JAMA 211:476-479, 1970

3.) Runyan JW: Decentralized medical care of chronic disease. Trans Assoc Am Phys 83:237-244, 1973

4.) Runyan JW: The Memphis chronic disease program. Comparisons in outcome and the nurse's extended role. JAMA 231:264-267, 1975

APPENDIX 3

ROLE OF REGIONAL MEDICAL PROGRAMS IN DIABETES EDUCATION

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
HEALTH RESOURCES ADMINISTRATION
BUREAU OF HEALTH PLANNING AND
RESOURCES DEVELOPMENT

TO : Joyce Kortman, Consultant to the
National Diabetes Commission

DATE: June 2, 1975

FROM : Acting Chief, Office of Systems Management, DRMP

SUBJECT: Diabetes Activities in the RMPs

The information you have requested is attached.

Joseph J. Ott

Joseph J. Ott

Region # & Name	Proj. No.	Project Title
02 Kansas	086	Quality Assurance - Ambulatory Diabetic Care
04 Albany	059	Regional Diabetes Mellitus Health Care
06 North Carolina	003	Diabetic Consultation & Education Service
	043	Share Your Skills Program - Diabetes
08 Connecticut	024	Yale Diabetic Teaching Consult
09 Missouri	043A	Diabetes in Children
12 Oregon	039	Diabetic Screening & Education
	044	Community Education - Hypertension & Diabetes
15 Intermountain	031	Diabetic Education
18 Tenn./Mid-South	CD15	Diabetic Education
25 Rochester	018	Diabetes Mellitus
28 Alabama	132	Early Detection of Diabetes
35 South Carolina	061	Diabetes Training
	066	Quality Assurance for Diabetics
	117	Lower Co. Diabetic Detection & Control
	120	Catawba Hypertension - Diabetes
41 Western Pa.	012	Patients with Diabetes Mellitus
46 Georgia	051	Educate Hlth. Professionals of Optimal Diabetic Care
	084F	Diabetes Day-Care
50 Central N.Y.	072	Out-Pt. Diabetes Education & Testing
51 Memphis	D010	Diabetic Education of Community
	D015	Diabetic Pt. Care Symposium
	073	Diabetic Education & Pt. Care
52 Arkansas	118	Diabetes - Education of Professionals & Laymen
	126	Diabetes Patient Care
57 Mississippi	034	Pt. & Staff Education of Selected Chronic Dis.
60 North Dakota	105	Diabetes Among Indians - Ft. Berthold
65 Puerto Rico	004	Education Program - Diabetes Mellitus
67 South Dakota	016	Diabetes Education Outreach
68 Nebraska	015	Education & Detection of Diabetes

APRIL 7, 1972

REGIONAL MEDICAL PROGRAMS SERVICE
DESCRIPTOR SUMMARIES - NATIONAL
OPERATIONAL COMPONENTS (EXCLUDING CORE/DEV)

NATIONAL SUMMARY AWARD
NO. OF COMPONENTS 596
TOTAL AWARD 42,073,042

AWARD AS OF 03/31/72

DESCRIPTOR	NO COMPS	DIR/INDIR AMOUNT	% OF TOTAL
I SPONSOR			
MEDICAL SCHOOL	219	16,756,346	40
UNIV HEALTH SCHOOL	30	2,185,198	5
OTHER EDUC INST	16	892,688	2
UNIV AFFIL'D HOSP	43	3,173,875	8
OTHER HOSPITAL	87	4,675,409	11
VOL HEALTH AGENCY	35	2,816,028	7
PUBLIC (GOV) HLTH AGCY	23	1,299,900	3
HEALTH PRO SOCIETY	14	1,382,430	3
OTHER (SPEC)	96	5,954,364	14
MULTIPLE (SPEC)	33	2,936,804	7
TOTAL	596	42,073,042	100
III HEALTH CARE PROCESS-PRIMARY			
SCREEN/EARLY DETECT	53	4,427,035	11
TREATMENT	243	15,887,427	38
REHABILITATION	51	3,061,904	7
COMPREHENSIVE CARE	183	15,413,992	37
NOT RELEVANT	66	3,282,684	8
TOTAL	596	42,073,042	100
IV GEOGRAPHIC SCOPE			
REG/NETWORK CEN&SATEL	92	6,876,377	16
REG NON SATELLITE	239	16,721,042	40
SUBREGIONAL	242	16,945,450	40
INTERREGIONAL	23	1,530,173	4
TOTAL	596	42,073,042	100
VI PRIMARY ACTIVITY			
GENERAL CON'T EDUC	137	8,155,958	19
TRN EXISTING HLTH PERL	131	7,907,783	19
TRN'G NEW CAT PERS	19	1,231,553	3
PAT CARE DEL INCL PAT	89	8,815,848	21
COMBO 1/2 TRN'G 1/2 PA	119	9,927,564	24
CORD HEALTH SERVICES	74	4,295,090	10
RESEARCH & DEVEL	22	1,523,524	4
DATA COLL/STATS	5	215,722	1
TOTAL	596	42,073,042	100

DESCRIPTOR	NO COMPS	DIR/INDIR AMOUNT	% OF TOTAL
II DISEASE CATEGORY			
HYPERTENSION	6	518,476	1
RHU FEV/CONG HRT DIS	4	287,068	1
HEART DISEASE	104	6,619,539	16
CERV UTER/BREAST CAN	7	783,041	2
CANCER	73	4,594,918	11
STROKE	58	4,562,711	11
KIDNEY DISEASE	28	2,631,184	6
PULMONARY DISEASE	18	1,762,262	4
DIABETES	10	578,123	1
SICKLE CELL ANEMIA			
OTHER (SPECIFY)	5	282,850	1
MULTIPLECATEG NON SPEC	283	19,452,870	46
TOTAL	596	42,073,042	100
III HEALTH CARE PROCESS-SECONDARY			
SCREEN/EARLY DETECT	3	168,300	
TREATMENT	6	296,597	1
REHABILITATION	6	526,800	1
COMPREHENSIVE CARE	1	92,200	
NOT RELEVANT			
TOTAL	16	1,083,897	3
V PRIMARY HEALTH PROVIDER TARGET GROUP			
MD'S & OR DO'S	96	6,368,932	15
NURSING PERSONNEL	60	3,253,255	8
ALLIED HLTH EX'G NURSE	30	2,306,059	5
DENTISTS	1	69,336	
PHYSICIANS & NURSES	70	5,179,701	12
NURSING PER & ALLIED	31	1,769,182	2
OTHER (SPECIFY)	18	611,612	1
MULTIPROFESSIONAL	237	18,840,840	45
NOT RELEVANT	53	3,674,125	9
TOTAL	596	42,073,042	100

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NATIONAL SUMMARY AWARD
NO. OF COMPONENTS 596
TOTAL AWARD 42,073,042

AWARD AS OF 03/31/72

DESCRIPTOR	NO COMPS	DIR/INDIR AMOUNT	% OF TOTAL
VII RACIAL/ETHNIC GROUP TARGET-PRIMARY			
BLACK	44	4,354,636	10
AMERICAN INDIAN	3	309,333	1
SPANISH SURNAMED	5	214,038	1
ORIENTAL	1	188,100	
CAUCASIAN	2	72,500	
OTHER	9	706,837	2
NOT RELEVANT	532	36,227,598	86
TOTAL	596	42,073,042	100
VIII SPECIAL TARGET POPULATION AGE/SEX			
CHILDREN 21 & UNDER	33	2,026,609	5
AGED OVER 65	11	484,159	1
WOMEN	7	658,522	2
COMBO ANY ABOVE	7	515,198	1
NOT RELEVANT	538	38,388,554	91
TOTAL	596	42,073,042	100
X RELATIONSHIP WITH OTHER FEDERALLY SPONSORED PROGRAMS			
MODEL CITIES	25	3,236,884	8
OEO	10	1,063,225	3
VETERANS ADMIN	14	608,568	1
NCHSRD			
OTHER	60	4,185,609	10
COMBO ANY ABOVE	28	2,688,807	6
NONE	459	30,289,949	72
TOTAL	596	42,073,042	100
XI SELECTED HEALTH CARE DELIVERY METHODS-PRIMARY			
AMBULATORY CARE	105	9,659,795	23
EMERG. SERVICE	13	511,884	1
EXTENDED LONG TERM CAR	22	1,427,894	3
GROUP PRACTICE	2	473,688	1
HEALTH MAINTENANCE			
HOME HEALTH CARE	27	1,601,156	4
IN-HOSPITAL CARE	22	1,628,841	4
INTENSIVE CARE	92	8,123,604	19
MOBILE UNITS	8	753,120	2
OTHER	84	5,655,545	13
NON-APPLICABLE	220	12,186,515	29
TOTAL	595	42,022,042	100

DESCRIPTOR	NO COMPS	DIR/INDIR AMOUNT	% OF TOTAL
VII RACIAL/ETHNIC GROUP TARGET-SECONDARY			
BLACK			
AMERICAN INDIAN	2	72,500	
SPANISH SURNAMED	9	704,869	2
ORIENTAL			
CAUCASIAN			
OTHER			
NOT RELEVANT			
TOTAL	11	777,369	2
IX OTHER SPECIAL TARGET GROUPS			
INNER CITY POOR	39	4,331,630	10
RURAL AREAS	58	3,134,467	7
MIGRANTS			
OTHER RURAL POOR	25	1,631,277	4
OTHER POOR	26	1,517,476	4
COMBO INNER CITY RURAL	1	65,500	
NOT RELEVANT	447	31,392,692	75
TOTAL	596	42,073,042	100
XI SELECTED HEALTH CARE DELIVERY METHODS-SECONDARY			
AMBULATORY CARE	21	1,871,623	4
EMERG. SERVICE	14	1,072,506	3
EXTENDED LONG TERM CAR	21	1,141,284	3
GROUP PRACTICE	5	628,858	1
HEALTH MAINTENANCE			
HOME HEALTH CARE	26	2,484,637	6
IN-HOSPITAL CARE	19	1,472,300	3
INTENSIVE CARE	10	518,401	1
MOBILE UNITS	3	337,643	1
OTHER	19	1,751,728	4
NON-APPLICABLE	1	133,462	
TOTAL	139	11,412,342	27

APRIL 7, 1972

REGIONAL MEDICAL PROGRAMS SERVICE
DESCRIPTOR SUMMARIES - NATIONAL
OPERATIONAL COMPONENTS (EXCLUDING CORE/DEV)

AWARD AS OF 03/31/72

NATIONAL SUMMARY AWARD
NO. OF COMPONENTS 596
TOTAL AWARD 42,073,042

XII PROJECT ELEMENTS-PRIMARY DESCRIPTOR	NO COMPS	DIR/INDIR AMOUNT	% OF TOTAL
ACCESS IMPROVEMENT	72	6,417,511	15
AREA HLTH EDUC CENTERS	4	322,222	1
CLIN, TECH PROF CONSUL	54	3,318,773	8
DATA SYSTEMS	3	256,130	1
DIALYSIS			
DRUGS INFORMATION	1	3,198	
ELECTRONIC COMM	31	1,465,203	3
FAMILY PRACTICE	1	112,100	
HLTH TEAM APPROACH	29	2,175,053	5
HLTH COST FINAN	3	218,906	1
JOINT SERVICES	50	3,833,765	9
LAB SERVICES	13	552,436	1
LIB & EDUC RESOURCES	40	2,118,545	5
NON-EMER TRANS SERV			
MANPOWER RECRUIT	10	456,144	1
MANPOWER OTHER	158	10,120,619	24
ORGAN/BLOOD BANKS	13	1,447,771	3
PAT OR PUBLIC EDUC	21	1,875,790	4
PAT MED RECORDS/AUDITS	7	321,189	1
PAT REFERRAL/FOL UP	19	1,647,833	4
REGISTRIES	21	1,129,596	3
SAFETIES			
SMOKING AND HEALTH	1	11,900	
STAND AND QUAL CARE	1	193,700	
THIRD FACULTY	16	1,637,965	4
OTHER	15	1,787,161	4
NONE APPLICABLE	13	649,532	2
TOTAL	596	42,073,042	100

XII PROJECT ELEMENTS-SECONDARY DESCRIPTOR	NO COMPS	DIR/INDIR AMOUNT	% OF TOTAL
ACCESS IMPROVEMENT	35	2,198,750	5
AREA HLTH EDUC CENTERS			
CLIN, TECH PROF CONSUL	46	2,426,727	6
DATA SYSTEMS	21	1,155,771	3
DIALYSIS	2	121,635	
DRUGS INFORMATION			
ELECTRONIC COMM	44	3,229,263	8
FAMILY PRACTICE			
HLTH TEAM APPROACH	33	2,003,500	5
HLTH COST FINAN	11	658,902	2
JOINT SERVICES	53	4,177,383	10
LAB SERVICES	13	1,432,557	3
LIB & EDUC RESOURCES	27	2,095,139	5
NON-EMER TRANS SERV	1	124,743	
MANPOWER RECRUIT	4	142,595	
MANPOWER OTHER	55	3,688,404	9
ORGAN/BLOOD BANKS	1	546,587	1
PAT OR PUBLIC EDUC	30	2,262,971	5
PAT MED RECORDS/AUDITS	22	2,136,606	5
PAT REFERRAL/FOL UP	25	2,324,935	6
REGISTRIES	2	96,400	
SAFETIES			
SMOKING AND HEALTH			
STAND AND QUAL CARE	5	236,467	1
THIRD FACULTY	13	299,408	1
OTHER	17	792,467	2
NONE APPLICABLE			
TOTAL	460	32,201,210	77

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NATIONAL SUMMARY AWARD
NO. OF COMPONENTS 596
TOTAL AWARD 42,073,042

CATEGORY V SUPPLEMENT - HEALTH PROFESSIONAL TARGET GROUPS

CATEGORY V TYPE	NUMBER
ALLIED HEALTH PERSONNEL	
DENTAL HYGIEN/ASSISTAN	1
DIETITIAN NUTRITIONIST	2
DIETETIC TECHNICIAN	1
DIETETIC ASSISTANT OR AIDE	1
HEALTH EDUCATOR	4
HOSP/NURSING/MEDICAL CARE ADM	8
INHALATION THERAPIST (TECH)	2
MEDICAL LIBRARIAN	2
MEDICAL LIBRARIAN ASSISTANT	1
MEDICAL RECORD LIBRARIAN	2
MEDICAL RECORD TECH/AIDE	3
MEDICAL TECHNOLOGIST	2
MEDICAL LABORATORY TECH	2
CYTOTECHNOLOGIST	
CERTIFIED LAB ASSISTANT	
NUCLEAR MEDICINE TECHNOLOGIST	1
NUCLEAR MEDICINE TECHNICIAN	
OCCUPATIONAL THERAPIST	1
OCCUPATIONAL THERAPY ASSISTANT	
PHARMACIST	
PHARMACY AIDE	
PHYSICAL THERAPIST	5
PHYSICAL THERAPY ASSISTANT	3
PHYSICIAN ASSOCIATE/ASSISTANT	2
PHYSICIAN AIDE	1
RADIOLOGY TECHNOLOGIST	1
RADIOLOGIC TECHNICIAN (XRAY)	1
RADIATION THERAPY TECHNOLOGIST	1
SPEECH PATHOLOGIST	
SOCIAL WORKER	2
SOCIAL WORKER ASST/AIDE	
VOCATIONAL REHAB COUNSELOR	
DOCTORS OF OSTEOPATHY	7
NURSING PERSONNEL	
NURSE PRACTITIONER	1
REGISTERED NURSE	32
PRACTICAL OR VOCATIONAL NURSE	16
NURSING AIDE ORDERLY	5
OTHER ALLIED HEALTH WORKERS	
COMMUNITY HEALTH AIDE	4
HOME HEALTH AIDE	6
MED MACHINE TECHNICIAN	2
MEDICAL EMERGENCY TECHNICIAN	
SCREENING TECHNICIAN	1
TUMOR REGISTRY SECRETARY	1
OTHER	6
OTHER PERSONNEL	
AMBULANCE PERSONNEL	2
FIREMEN	2
LIFE GUARDS	
POLICEMEN	2
RESCUE SQUAD	1
OTHER	1

DIABETES PROJECTS

ALABAMA

Project #132: Early Detection of Diabetes
Project Director: John R. Pierce, O.D., Ph.D.
University of Alabama
School of Optometry
Birmingham, Alabama

Aim of Project : Upgrade knowledge and clinical skills of practicing optimetrists in screening and referring diabetic patients. Demonstrate optometrists as a resource for early detection of diabetes.

Funding Source :

RMP (1 yr., 9/74-6/75)	$ 17,684
Other funds	-0-
% of Total Alabama RMP Budget	.5

ALBANY

Project #059: Regional Diabetes Mellitus Health Care
Project Director: William P. Nelson III, M.D.
Albany Medical College
Albany, New York

Aim of Project : Provide patient education and counseling; continuing education for health providers especially for selected RNs and nutritionists to increase the number with expertise regarding diabetes; create telephone "hot-line" to deal with emergencies.

Funding Source :

RMP (1 year, 9/74-6/75)	$ 52,747
Local Funds	34,666
% of Total Albany RMP Budget	2.4

(Funds requested to continue project to 6/76.)

ARKANSAS

Project #118: Diabetes - Education of Professional and Laymen
Project Director: Billie Larch
Arkansas Affiliate of American
Diabetes Association
Little Rock, Arkansas

Aim of Project: Diabetes education program for professionals and public; plan and establish satellite (8) screening and referral centers for the entire State of Arkansas; improve standard of treatment.

Funding Source:

RMP (1 yr., 01/74-06/75)	$ 10,835
Other Funds	-0-
% of Total Arkansas RMP Budget	.003

(Volunteer screening activities of clinic to continue under supervision of Arkansas Affiliate of the American Diabetes Assoc. after RMP funds expended.)

Project #126: Diabetic Patient Care
Project Director: Jayanna McCulloch
St. Vincent's Infirmary
Little Rock, Arkansas

Aim of Project: Increase quality of care delivered to the diabetic and his family through a team approach delivery technique for both in-patient and follow-up out-patient basis.

Funding Source:		
	RMP (1 year, 1/74-6/75)	$ 46,979
	Other funds	-0-
	% of Total Arkansas RMP Budget	.016

CENTRAL NEW YORK - South; Tioga, Bradford, Susquehanna Counties

Project #072: Out-Patient Diabetes Education & Testing
Project Director: Ralph H. Mayer
Robert Packer Hospital
Sayre, Pennsylvania

Aim of Project: Detect and treat unknown diabetics in three county rural area; provide patient and family education workshops geared to specific types of diabetics; serve as a model for rural areas.

Funding Source:		
	RMP (1 year, 1/74-6/75)	$ 14,000
	Other funds	-0-
	% of Total Central N.Y. RMP Budget	.9

CONNECTICUT

Project #024: Yale Diabetes Teaching Consultation Program
Project Director: Philip Felig
Yale University
New Haven, Connecticut

Aim of Project: Patient education program at Yale - New Haven Hosp. and provide consultation to four community Hospitals improve diabetic services based on a Yale pilot study.

Funding Source:		
	RMP (First year 1/70-12/70)	$ 32,800
	Other funds	-0-
	% of Total Conn. RMP Budget	1.6
	RMP (Second year 1/71-12/71)	$ 36,000
	Other Funds	-0-
	% of Total Conn. RMP Budget	2.3
	RMP (Third year 1/72-12/73)	$ 61,108
	Other Funds	-0-
	% of Total Conn. RMP Budget	1.5

GEORGIA

Project #051: Educate Health Professionals of Optimal Diabetic Care
Project Director: John K. Davidson, M.D.
Emory University School of Medicine
Atlanta, Georgia
Aim of Project: Develop Center designed to provide optimal care, education of health professionals, and follow-up for diabetic patients, Grady Hospital.
Funding Source:

RMP (1 year 9/71-12/72)	$ 35,806
Other Funds	86,424
% of Total Georgia RMP Budget	.5

Project #051B: Educating Health Professionals in Optimal Diabetes Care
Project Director: John K. Davidson, M.D.
Emory School of Medicine
Atlanta, Georgia
Aim of Project: Provide education in the optimal care of patients with diabetes for all health professionals involved in treatment of the disease.
Funding Source:

RMP (1 yr. 9/71-12/72)	$ 37,381
Other Funds	-0-
% of Total Georgia RMP Budget	.6

Project #084F: Diabetes Day-Care Program
Project Director: Jack Blalack, M.D.
The Medical Center
Columbus, Georgia
Aim of Project: Improve patient care; provide training sites and demonstration clinic in west Ga. for M.D.s and allied health personnel; develop and provide optimal care of ambulatory diabetics.
Funding Source:

RMP (1 yr. 1/74-6/75)	$ 12,481
Other Funds	-0-
% of Total Ga. RMP Budget	.2

INTERMOUNTAIN

Project #031: Diabetic Education
Project Director: Dana Clarke , M.D.
Intermountain RMP
University of Utah
Salt Lake City, Utah
Aim of Project: Establish diabetes center; improve quality and availability of health care of diabetic patients; reduce cost of care and provide patient, family, and professionals education.

INTERMOUNTAIN Project #031 - (Continued)

Funding Source:	RMP (First year 4/71-3/72)	$116,465
	Other Funds	-0-
	% of Total Intermountain RMP Budget	3.3
	RMP (Second year 4/72-12/73)	$222,414
	Other Funds	-0-
	% of Total Intermountain RMP Budget	4.2
	RMP (Third year 1/74-6/75)	$ 3,331
	Other Funds	-0-
	% of Total Intermountain RMP Budget	.08

KANSAS

Project #086: Quality Assurance - Ambulatory Diabetic Care

Project Director: Joseph Kymer, M.D.
Kansas University Medical Center
Kansas City, Kansas

Aim of Project: Develop and establish a model comprehensive management system for ambulatory diabetics - specifically, develop quality standards; educational program for patient self-care; protocol of management for health care team and utilization of RN practitioner.

Funding Source:	RMP (1 year 1/74-6/75)	$ 27,075
	Other Funds	-0-
	% of Total Kansas RMP Budget	.9

Project #066: Juvenile Diabetes Project

Project Director: Melva Burt
Kansas Diabetes Assoc., Inc.
Wichita, Kansas

Aim of Project: Develop a resource for integrated high quality program in four areas of the State - juvenile and adult education; professional education, and expand target population to include adult diabetics.

Funding Source:	RMP (First year 9/72-12/73)	$ 23,501
	Other Funds	-0-
	% of Total Kansas RMP Budget	1.0
	RMP (Second year 1/74-6/75)	$ 52,006
	Other Funds	-0-
	% of Total Kansas RMP Budget	1.7

(Additional RMP funds have been requested to continue project to 6/76.)

LOUISIANA

Project #002: Teaching Conferences for Diabetic Patients
Project Director: Jerome R. Ryan, M.D.
Tulane University
New Orleans, Louisiana
Aim of Project: Provide teaching conferences for State Charity Hospital clinic patients, televised over La. Dept. of Hospitals via closed circuit once weekly to give patients understanding of the nature of diabetes, treatment, and home care.

Funding Source:	
RMP (1 year 3/70-2/71)	$ 28,900
Other Funds	-0-
% of Total La. RMP Budget	3.94

Project #038: Outreach Nutritional Counseling Program for Diabetics
Project Director: Rose Ann Langham, D.P.H.
Division of Health
Maintenance and Ambulatory Patient Services
Louisiana Department of Health
Aim of Project: A demonstration project to provide outreach nutritional education program for the diabetics involving private care providers, Charity Hospital, and Public Health Clinics in selected rural areas. Target: rural indigent population.

Funding Source:	
RMP (1 year 1/74-6/75)	$ 19,338
State Funds	3,248
% of Total La. RMP Budget	1.1

MEMPHIS

Project #D010: Diabetic Education of Community
Project Director: Jean M. Hawkes, M.D.
Memphis Diabetes Association
Memphis, Tennessee
Aim of Project: Provide education to diabetic patients of Memphis through an organized plan involving physicians, nurses, and dieticians.

Funding Source:	
RMP (1 year 1/74-6/75)	$ 15,700
Other	-0-
% of Total Memphis RMP Budget	.34

(Project anticipated continuation beyond 6/75 with funds from the Memphis Diabetes Assoc. and fees charged for the workshops.)

Project #D015: Diabetic Patient Care Symposium
Project Director: Abbas E. Kitahchi, Ph.D., M.D.
Clinical Research Center
University of Tennessee
Memphis, Tennessee

Aim of Project: For Better health care of diabetic patients, hold a symposium primarily for the education of para-medical personnel.

Funding Source:		
	RMP (1 year 1/74-6/75)	$ 1,692
	Other Funds	-0-
	% of Total Memphis RMP Budget	.03

Project #073: Diabetes Education and Patient Care
Project Director: Abbas E. Kitahchi, Ph.D., M.D.
Clinical Research Center
University of Tenn.
Memphis, Tennessee

Aim of Project: Patient educational program to allow for better patient management, especially for the long term management that will involve the use of insulin or oral hypoglycemic agents, and increased quality of care.

Funding Source:		
	RMP (1 year 1/74-6/75)	$ 23,925
	Other Funds	-0-
	% of Total Memphis RMP Budget	.52

(Additional RMP funds have been requested to continue project to 6/76.)

MICHIGAN

Project #D003: Program to Improve Health Care of Diabetics
Project Director: Hugh Baker
Michigan Diabetes Assoc.
Lansing, Michigan

Aim of Project: Patient education - develop a teaching specialist to assume responsibility for increasing the effectiveness of Health Center staff's in training diabetics to manage their condition; assistance in home care. Areas: Pontiac, Alma, Grand Rapids.

Funding Source:		
	RMP (1 year 9/71-12/72)	$ 38,000
	Other Funds	-0-
	% of Total Michigan RMP Budget	1.32

MISSISSIPPI

Project #034: Patient and Staff Education of Selected Chronic Disease
Project Director: Frank Wiygul, M.D.
State Board of Health
Jackson, Mississippi

Aim of Project: Designed primarily as a public education activity to augment health education services; upgrade skills of health providers; establish a system of health education clinics for specific diseases, diabetes, hypertension, neurology; to reach medically needed chronic disease patients, thus enhance quality of care.

Funding Source:

RMP (First year 11/72-12/73)	$ 54,528
Other Funds	-0-
% of Total Mississippi RMP Budget	2.9
RMP (Second year 1/74-6/75)	$ 56,145
Other Funds	-0-
% of Total Mississippi RMP Budget	1.0

Project #043A: Diabetes - Children
Project Director: Calvin Woodruff
University of Missouri
Columbus, Missouri

Aim of Project: Diabetes education - community, patient, parent, practicing M.D.; screening and early detection and treatment; consultation services for diabetic child and parents; and research.

Funding Source:

RMP (First year 4/69-6/70)	$ 51,600
Other Funds	-0-
% of Total Mississippi RMP Budget	.75
RMP (Second year 7/70-6/71)	$ 97,900
Other Funds	-0-
% of Total Mississippi RMP Budget	2.17
RMP (Third year 7/71-8/72)	$ 78,098
Other Funds	-0-
% of Total Mississippi RMP Budget	2.7
RMP (Fourth year 9/72-12/73)	$ 60,585
Other Funds	13,500
% of Total Mississippi RMP Budget	2.38

NEBRASKA

Project #015: Comprehensive Education and Detection in Diabetes
Project Director: Geraldine Stamm
Nebraska Medical Foundation

Aim of Project: Develop standards of care for diabetics; standardize statewide instructional manual for distribution; comprehensive education program for health providers and patients; create public awareness and conduct detection drives statewide; provide consultation service.

Funding Source:		
	RMP (1 year 9/72-12/73)	$ 8,200
	Other Funds	-0-
	% of Total Nebraska RMP Budget	1.0
	RMP (Second year 1/74-6/75)	$ 36,870
	Other Funds (Grant Related Income)	25,000
	Other Federal Funds	2,100
	% of Total Nebraska RMP Budget	2.7

(The implementation of standards will be continued by the State's health care professionals on self-sufficient basis. Dissemination of manual and coordination of activities of management of the diabetic will contue through Nebraska Diabetic Assoc. and the State Dept. of Health.)

NORTH CAROLINA

Project #003: Diabetic Consultation and Education Service
Project Director: R. Bressler, M.D.
Duke University
Durham, North Carolina

Aim of Project: Statewide program to provide improved care in the management of the diabetic and related problems by direct services; consultation and education especially to primary care M.D.s; educational opportunities to other health providers; establish diabetic clinics; and provide patient education, development of teaching aids, manuals, publications, etc.

Funding Source:		
	RMP (First year 3/68-6/69)	$167,100
	Other Funds	-0-
	% of Total N. Carolina RMP Budget	9.2
	RMP (Second year 7/69-6/70)	$166,000
	Other Funds	-0-
	% of Total N. Carolina RMP Budget	7.2

NORTH CAROLINA Project #003 (Continued)

RMP (Third year 7/70-6/71)	$104,300
Other Funds	-0-
% of Total N. Carolina RMP Budget	3.8
RMP (Fourth Year 7/71-8/72)	$ 87,390
Other Funds-Grant Related Income (Receipts from sale of N.C. RMP funded publication.)	3,485
% of Total N.C. RMP Budget	2.4
RMP (Fifth year 9/72-12/73)	$ 48,096
Other Funds	-0-
% of Total N.C. RMP Budget	1.8

Project #043: Share Your Skills Program - Diabetes
Project Director: Carl S. Phipps, M.D.
North Carolina Diabetes Assoc., Inc.
Raleigh, North Carolina

Aim of Project: Reduce occurence of preventable complications through a community-based manpower development and utilization program to provide education to the diabetic regimen. and assist patients with problems the disease inflicts upon them. (Four SW counties of N.C.)

Funding Source: RMP (First year 1/74-6/75)	$ 93,973
Other Funds	-0-
% of Total N.C. RMP Budget	2.5

(Additional funds have been requested to continue project to 6/76.)

NORTH DAKOTA

Project #105: Diabetes Among Indians - Ft. Berhold Indian Reservation
Project Director: James D. Brosseau, M.D.
University of No. Dakota
Dept. of Community Medicine
Bismarck, North Dakota

Aim of Project: Establish prevalence of diabetes; organize a model patient education program with emphasis on cultural and epidemiological factors; examine dietary, environmental, hereditary factors which may influence the disease.

Funding Source: RMP (1 year 1/74-6/75)	$ 3,826
Other Funds	-0-
% of Total N.D. RMP Budget	4.4

NORTHLANDS

Project #005: Diabetes Regional Center - Detection and Education
Project Director: Donald D. Etzwiler, M.D.
Diabetes Detection and Research Center
Minneapolis, Minnesota
Aim of Project: Plan, instigate, and develop new programs through the center, by evaluation of factilities, personnel; education courses, development of materials, and techniques; implementation of inservice educational programs, and re-evaluation; emphasis in on improved care for the diabetic.

Funding Source:		
	RMP (First year 3/69-2/70)	$48,000
	Other Funds	-0-
	% of Total Northlands RMP Budget	3.6
	RMP (Second year)	$48,000
	Other Funds	-0-
	% of Total Northlands RMP Budget	2.6
	RMP (Third year 4/71-3/72)	$40,600
	Other Funds	-0-
	% of Total Northlands RMP Budget	3.2

Project #018: Diabetes Detection and Education Center
Project Director: Donald D. Etzwiler, M.D.
Diabetes Detection and Research Center
Minneapolis, Minnesota
Aim of Project: Emergency interim support for the Diabetes Detection and Education Center in Minneapolis. Special RMP Action Project.

Funding Source:		
	RMP (1 year 3/70-3/71)	$ 81,600
	Other Funds	-0-
	% of Total Northlands RMP Budget	4.4

OREGON

Project #012: Southern Oregon Diabetic Instruction and Evaluation
Project Director: Kenric Jones, M.D.
Rogue Valley Memorial Hospital
Medford, Oregon
Aim of Project: Provide instruction courses varying according to group for diabetic patients, family of patients, and health providers, and community health professionals.

Funding Source:		
	RMP (First year 4/69-3/70)	$ 18,100
	Other Funds - Fees	700
	% of Total Oregon RMP Budget	1.7

OREGON Project #012, Funding Source (Continued)

RMP (Second year 4/70-3/71)	$ 23,000
Other Funds	-0-
% of Total Oregon RMP Budget	2.2

Project #039: Diabetic Screening and Education Program
Project Director: Patricia Williams, R.N.
Oregon Rural Opportunities
Aim of Project: Screening (blood sugar) field and clinics, migrant farm workers, follow-up treatment, and referrals; educational courses for patient, extended families, and general public; Mid-Willamette Valley area.

Funding Source: RMP (First year 9/74-9/75)	$ 43,430
Other Funds	-0-
% of Total Oregon RMP Budget	2.4

Project #044: Community Education - Hypertension & Diabetes
Project Director: Billie Odegaard
Multnomah County
Division of Health Services
Portland, Oregon
Aim of Project: Establish a formal education center, design courses for low-income patients with diagnosed chronic disease, hypertension primarily, diabetes eventually; develop referrals system and curricula for future courses. Portland Model Cities Area.

Funding Source: RMP (1 year 1/74-6/75)	$ 25,504
Other funds	-0-
% of Total Oregon RMP Budget	1.4

(The Multnomah Co. Division of Health Services expressed interest in assuming cost of Center subject to satisfactory resolution of its current budgeting problems.)

PUERTO RICO

Project #004: Education Program Diabetes
Project Director: Lillian Haddock, M.D.
University of Puerto Rico
Medical Service Campus
Rio Piedras, Puerto Rico

Aim of Project: A model training center for MDs, interns, residents, medical students and other allied health personnel, stimulate interest of public in diabetes; earlier detection and improvement of quality of care.

Funding Source:		
	RMP (First year 5/70-5/71)	$ 66,300
	Other Funds	-0-
	% of Total Puerto Rico RMP Budget	6.1
	RMP (Second year 6/71-8/72)	$ 50,666
	Other Funds (State Funds)	71,921
	% of Total Puerto Rico RMP Budget	4.0
	RMP (Third year 9/72-12/73)	$ 33,402
	Other Funds	-0-
	% of Total Puerto Rico RMP Budget	2.3

ROCHESTER

Project #018: Diabetes Mellitus
Project Director: S. Zane Burday, M.D.
University of Rochester
Rochester, New York

Aim of Project: Diabetes education - patient and health care professionals assess diabetic control thru periodic medical evaluation of patients.

Funding Source:		
	RMP (First year 3/69-2/70)	$ 27,600
	Other Funds	-0-
	% of Total Rochester RMP Budget	2.1
	RMP (Second year 3/70-8/71)	$ 48,600
	Other Funds	-0-
	% of Total Rochester RMP Budget	2.4
	RMP (Third year 9/71-12/72)	$ 39,851
	Other Funds	-0-
	% of Total Rochester RMP Budget	2.3

SOUTH CAROLINA

Project #061: Diabetes Training
Project Director: J. C. Hedden
Spartanburg County Health Dept.
Spartanburg, South Carolina

Aim of Project: To provide a standardized instruction program for teaching diabetic patients, and families to control and manage the disease; training sessions for professionals and allied health personnel. Instruction for home care and patient follow-up; expand program to community facilities statewide.

Funding Source:

RMP (First year 7/71-8/72)	$ 11,291
Other Funds	-0-
% of Total South Carolina RMP Budget	.05
RMP (Second year 9/72-12/73)	$ 25,098
Other Funds	-0-
% of Total South Carolina RMP Budget	1.0

(Continuation: Spartanburg General Hospital will continue to provide training as a service to both in-patients and out-patients.)

Project #006: Education Program for Diabetics
Project Director: John A. Calwell, M.D.
Medical University of South Carolina
Charleston, South Carolina

Aim of Project: Develop a model diabetic education center (Charleston area) for diabetics referred by MDs and clinics; statewide physician education through seminars, visits by multidisciplinary team to communities and refresher courses.

Funding Source:

RMP (First year 9/72-12/73)	$ 6,264
Other Funds	-0-
% of Total South Carolina RMP Budget	.25
RMP (Second year 1/74-6/75)	$ 87,650
Other Funds	-0-
% of Total South Carolina RMP Budget	2.5

Project #117: Low-County Diabetes Detection & Control Program
Project Director: David B. McCallum
South Carolina Dept. of Health
and Environmental Control
Columbia, South Carolina

Aim of Project: Public and professional education; primary and secondary screening; seek/provide diagnostic services, follow-up, and supportive services.

Funding Sources:

RMP (First year 1/74-6/75)	$ 50,000
Other Funds	-0-
% of Total South Carolina RMP Budget	1.4

(State and local funds are being sought to continue the project past 6/75.)

Project #120: Catawba Hypertension - Diabetes (District 3 Central Piedmont)
Project Director: Helen E. Llewelyn, M.D., M.P.H.
Lancaster County Health Dept.
Piedmont, South Carolina

Aim of Project: Community based program of screening, referral treatment and education for hypertension and diabetes; specific output - reduction in disease, disability and death from hypertension, diabetes or their sequelae.

Funding Source:

RMP (1 year 1/74-6/75)	$ 25,000
Other Funds	-0-
% of Total South Carolina RMP Budget	.74

(Additional funds have been requested to continue project to 6/76. Continuation after 6/76 possibilities very good; expected State funds; Title XIX reimbursement and sliding scale charges.)

SOUTH DAKOTA

Project #016: Diabetes Education Outreach Program
Project Director: Ronald Norton
Sacred Heart Hospital, Yankton
Yankton County, South Dakota

Aim of Project: Education - provide a facility and teaching team for educating the professionals, diabetics, and family; increase standards of patient care, a step toward the prevention of illness statewide.

Funding Source:

RMP (1 year 1/74-6/75)	$ 7,879
Other Funds	-0-
% of Total South Dakota RMP Budget	.71

(Additional funds have been requested for continuing project to 6/76. Future funding support from participating institutions within the service area.

TENNESSEE/MID-SOUTH

Project #CD15: Diabetic Education
Project Director: Naddy Deanna
Columbia State Community College
Columbia, Tennessee
Aim of Project: Volunteer teaching personnel will offer courses (3 days monthly) to ambulatory diabetics and families over a period of 15 months in an effort to reduce hospital readmissions.
Funding Source:

RMP (1 year 1/74-6/75)	$ 2,500
Other Funds	-0-
% of Total Tenn/Mid-South RMP Budget	.07

Project #047: Diabetes Education Program
Project Director: Alan L. Graber, M.D.
Vanderbilt University
Nashville, Tennessee
Aim of Project: Create citizen awareness of diabetes; stimulate professionals to take advantage of continuing education and consultation in coping with diabetes. Reduce untreated diabetes disability.
Funding Source:

RMP (First year 2/72-12/71)	$ 43,287
Other Funds	-0-
% of Total Tenn/Mid-South RMP Budget	2.0
RMP (Second year 1/72-12/73)	$ 99,171
Other Funds	-0-
% of Total Tenn/Mid-South RMP Budget	2.1

WESTERN PENNSYLVANIA

Project #012: Regional Program for Patients with Diabetes Mellitus
Project Director: Thaddeus S. Kanowski, M.D.
Magee Womens Hospital
Pittsburgh, Pa.
Aim of Project: Educate physicians in latest clinical view and treatment of diabetes, obesity, and endocrine disorders. Collect data, analyze and prepare it for publication. Disseminate publications to physicians in area.
Funding Source:

RMP (First year 1/71-8/72)	$ 34,425
Other Source	-0-
% of Total Western Pa. RMP Budget	2.1
RMP (Second year 9/72-12/73)	$ 14,602
Other Funds	-0-
% of Total Western Pa. RMP Budget	.8

THE DIABETES TEACHING NURSE PROGRAM

of the

Diabetes Consultation and Education Service

(sponsored by the N. C. Regional Medical Program)

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April 1973

INTRODUCTION

For the past five years a unique Diabetes Teaching Nurse (DTN) Program has been carried out in North Carolina. It was initiated with Regional Medical Program funds after the need was vividly demonstrated in several studies which were published in 1967. These studies reported a high incidence of both poor diabetic control and unsafe patient management of the day-to-day diabetic regimen.* The response of the authors to their findings was to apply to the North Carolina Regional Medical Program for funds to start the Diabetes Consultation and Education Service (henceforth referred to as the "Diabetes Project"). One aspect of this project was the employment of Diabetes Teaching Nurses in order to try to improve diabetic care and management, for it seemed apparent that nurses and doctors in general practice did not have the time (and perhaps the specialized knowledge and equipment) necessary to provide adequate education and support for diabetic patients.

Phase I -- a Feasibility Project

In order to study the feasibility of establishing Diabetes Teaching Nurses in community settings, four pilot sites were set up: two in rural mountainous areas and two in urban settings (See Table I, Phase I). The primary purpose of these 4 sites was to provide direct patient teaching. Each nurse was hired by a local hospital, and functioned under the personnel policies of that hospital. The staff of RMP's Diabetes Project developed an orientation program for each nurse with regard to diabetic care, and provided ongoing consultation, guidance and workshops. Additional inservice education or staff development was provided in the same manner as for other members of the nursing staff of the hiring institution.

In each instance a local physician was identified to help establish the DTN site, gain the approval of the local medical society, and assist the DTN in any areas where she might need medical input. In some instances a committee composed of several members of the health team was established in order to provide support and guidance. With this kind of backing the service quickly met with a high degree of acceptance, to the point that in one hospital 25 out of the 27 staff physicians were referring patients to the DTN. (The two remaining physicians were a radiologist and a pathologist, both of whom had no need for such referrals.)

Although the DTNs were employed by hospitals, all but one had the freedom to visit patients in their homes as well as in the hospital. In addition, the need for them to become involved in inservice education and broader community service very quickly became apparent. Thus they started reaching out into the community -- working with pharmacists, professionals from other health-care

*Among the many statistics which were revealed are the following:
71% of the study patients were considered to be in poor control.
58% were making errors in insulin dose.....and 35% were making "potentially serious" errors.
77% sterilized their equipment in an unacceptable manner.
67% tested their urine incorrectly.
(Williams, Watkins. Am. J. of Public Health, March 1967.
Williams, J. of the Am. Dietetic Assoc., July 1967.
Watkins, Diabetes, December 1967.)

agencies, groups of lay persons interested in diabetes, etc. The primary focus, however, remained with direct patient teaching.

It was, of course, the expectation of the Project staff that the DTN sites would be considered valuable enough to be supported locally once RMP funds were no longer available, and evidence that this would be done became available very quickly. Soon after the program began it became apparent that one of the nurses, who was working half time with RMP funds, was badly needed on a full-time basis. Before long the hospital nursing service assumed responsibility for the other half of her salary, and it was obvious that the DTN position had become a firmly established one in the staff structure.

When RMP funds were withdrawn from the four Phase-I sites on June 30, 1971 (2½-3 years after the nurses were hired), three of the four hospitals assumed full financial responsibility for the programs. The fourth site had been tied administratively to the medical school in a large medical center rather than to the hospital itself, and this was probably a significant factor in its not being continued. However, a lasting impact had been made in spite of the fact that the site was phased out, for the DTN had helped to establish a strong local Chapter of the North Carolina Diabetes Association. This Chapter had now continued to provide other kinds of service to diabetics in that community.

Phase II

Because of the demonstrated success and value of the pilot DTN sites, additional funds were requested and granted for the purpose of establishing four new half-time positions in other parts of the state. (See Table I, Phase II.) The Phase-I sites had demonstrated the need to broaden the impact which the nurses would have, so the new positions were designed to provide more education of lay and professional groups, and more community involvement. Direct patient teaching did, of course, continue, for without this kind of contact with patients it would have been impossible for the nurses to develop and maintain the expertise necessary for carrying out their other responsibilities. Each nurse was instructed that priorities for the use of her time should be determined by the impact which an activity would be expected to have on overall diabetic care. (For further information, see Guidelines: DTN Job Description, page 8.)

TABLE I

DIABETES-TEACHING-NURSE SITES IN NORTH CAROLINA

Phase I	% time	Phase II	% time
Waynesville: Haywood County Hospital	100	Raleigh: Wake Memorial Hospital	50
Sylva: C. J. Harris Community Hospital	50	Greensboro: Community Health Services	50
Charlotte: Charlotte Memorial Hospital	100	Greenville: Pitt County Memorial Hospital	50
*Winston-Salem: N.C. Baptist Hospital	100	Wilmington: New Hanover Co. Health Department	50

*Phased out as a DTN site on July 1, 1971.

Before each of the four new sites was established, a local diabetes committee was organized. This approach had been used to some extent during Phase I and had been found to be valuable, and now, with the need to develop sites where the nurses could be assured of having an impact on the community as a whole, committees with broad representation were seen as imperative. It had also been obvious during Phase I that the DTNs needed the help and support of many members of the health team, and members of the committee were able to serve that function as well. The local diabetes committees were composed of representatives of several of the health professions and were drawn from some of the major health-care institutions and agencies in the communities. Often top administrative personnel were interested enough in the project to serve as the committee representative from their particular agencies or disciplines. Each committee determined the most appropriate location for the nurse in that area, helped to implement the establishment of the new position, and provided guidance in program planning and development. (For further information regarding committee organization and functions, see Guidelines: The Diabetes Committee, page 6.)

Funding for the new sites was at a level which was considered sufficient to cover the major costs of the program (salary for a half-time nurse, fringe benefits, travel and a few supplies), but it was not intended to cover indirect costs such as office space, etc. In order to be certain that the DTN would have mobility, the Diabetes Project designated a specific portion of the total funds to be available for travel. Except for this stipulation, however, the hiring institution was free to develop its own budget for the use of the funds, providing the guidelines (see Appendix A) were followed. The nurse's salary was decided upon between her and the hiring institution, and was determined by the salary scale which was in use at that institution.

Two of the new positions were set up in hospitals where the administrative personnel were in agreement with the philosophy of having community outreach, and two were in agencies which were, by definition, more community based -- a Health Department and Community Health Services (a United-Fund organization which provides a broad spectrum of health-related services). The administrative personnel in each agency demonstrated a willingness to see that the program was carried on after RMP funding was withdrawn, but there was no formal contract to this effect.

For the first time since the project began, there were now nurses in agencies other than hospitals, and some new problems emerged. For instance, the nurse who was employed by Community Health Services was the only nurse in the agency, and therefore needed to spend time developing many policies and guidelines which were already available in an established nursing service. This type of setting had the advantage of giving the nurse considerable freedom to move about the community, but she found it somewhat more difficult than the other DTNs did to establish her identity in the minds of the health-care professionals elsewhere in the area.

Nurses were hired for these four new positions between December 1970 and March 1971, and RMP funding continued through June 30, 1972. Since then local funding has been available for ALL FOUR of the newer sites as follows:

--- In the community where the DTN is employed by the Health Department, the County Commissioners have voted to retain this position as an integral part of the Health Department's nursing service.

--- One of the hospitals has continued the service without question. In fact, the nurse had been working only six months before the hospital

administration felt that she had made such a valuable contribution to patient care that she was asked to work full time, with the other half of her salary coming from the hospital budget. (This, then, was the second institution where this offer had been made, although the Phase II Nurse was not able to accept it because of family responsibilities.)

--- The second hospital-based site was funded temporarily by the hospital itself, and monies are now being received from a foundation to continue the community teaching program.

--- The local Diabetes Association has committed itself to supporting the DTN position based in Community Health Services, and money is being obtained through the United Fund. In the interim between RMP funding and United-Fund support, several community sources (including an organization of local physicians) provided funds to continue the project.

Impact of the DTN Program

A number of factors have clearly demonstrated the impact which the DTN program has had on the communities where it has been in operation, and some of the more important of these factors are listed below. State-wide and even national impact has also been demonstrated.

--- LARGE NUMBERS OF PATIENTS ARE RECEIVING DIRECT TEACHING FROM THE DTNS. Although numbers alone do not in any way tell the full story, they do help to indicate the broad impact which the nurses have had on patient care. The figures below give a brief picture of the volume of one-to-one patient teaching which was done by the DTNs during the fiscal year beginning July 1, 1971 and ending June 30, 1972. During this period there were seven DTNs, two of whom were working full time, and five of whom were working half time.

Number of patients new to the program	1120
Number of teaching contacts with patients	4035
Number of teaching contacts with family members . . .	822

In addition to the one-to-one teaching, the DTNs have also been involved with group classes and educational programs for the lay public (including numerous diabetics and their families).

--- THE DTNs FREQUENTLY CITE INSTANCES WHERE IMPROVEMENT IN DIABETIC CONTROL AND MANAGEMENT HAS BEEN DRAMATIC, and patient gratitude for the service is very often expressed. Although there has been no hard data collected regarding improved control, decrease in hospitalization, etc., personnel in several of the sites are convinced that such results have indeed been realized.

--- THERE HAS BEEN CONSIDERABLE EVIDENCE THAT OTHER HEALTH PROFESSIONALS HAVE BECOME MORE AWARE OF THE TEACHING NEEDS OF DIABETIC PATIENTS as they have worked closely with the Diabetes Teaching Nurses. Although

there occasionally has been some resistance to the program on the part of other nurses, in general it has been well accepted by them and seems to have stimulated them to become more involved in diabetic assessment and teaching. In addition, inservice education programs have been in great demand, and because of their intensive work with diabetic patients, the DTNs have been widely used to fulfill this need.

--- SEVEN OUT OF THE EIGHT DTNs HAVE BEEN ACTIVE IN LOCAL CHAPTERS OF THE NORTH CAROLINA DIABETES ASSOCIATION, AND THREE WERE DIRECTLY RESPONSIBLE FOR THE INITIATION OF THESE CHAPTERS IN THEIR OWN COMMUNITIES. The programs now being offered by the Chapters are broad and varied, including detection drives, workshops, day camps and educational meetings, and the nurses often participate in planning or carrying out these activities.

--- SEMI-ANNUAL DTN WORKSHOPS, originally held solely to meet the needs of the RMP-funded DTNs, HAVE NOW BEEN EXPANDED TO INCLUDE SEVERAL OTHER NURSES IN THE STATE who are devoting a major portion of their time to diabetic teaching. These get-togethers have been so valuable in providing the nurses with an opportunity to obtain up-to-date information and to share ideas among each other, that a DTN workshop on a national scale has been planned for the summer of 1973.

--- AS A SECONDARY BENEFIT, THE DTN PROGRAM HAS INCREASED THE WORKING FORCE OF NURSES within the communities by attracting housewives who were not active in nursing at the time they were hired. The flexibility of hours has made it possible for them to carry out the responsibilities of their jobs while they continue to fulfill their family obligations, and the freedom they are given to develop their own programs for a group of patients who so obviously need their help has led to a high degree of motivation and job satisfaction. Thus housewives have been willing to devote their time to this venture, and there has been little turnover of personnel.

--- SEVERAL OTHER PROGRAMS HAVE BEEN OR ARE BEING DEVELOPED IN NORTH CAROLINA AND IN OTHER PARTS OF THE COUNTRY USING THE CURRENT DTN SITES AS MODELS. Although these new programs generally differ from the original sites in one or more major aspects, NCRMP's DTN program has provided stimulation for the development of other sites and a background of experience upon which to draw in adapting a new program of local needs.

Plans for the Future

ecause of the impact which the DTN sites have made on diabetic care in the tate, the Board of Directors of the North Carolina Diabetes Association has ommitted itself to providing seed money for additional sites as sufficient unds become available. Although fund raising is just getting under way for his relatively new association, the establishment of additional DTN sites is een as one of the priority items for the budget. Not only is the work which s currently being performed by the DTNs impressive, but since the communities ave demonstrated a willingness to assume the funding after the sites have beome established, the provision of "seed" money for this purpose is seen as onstituting a worthwhile and potentially lasting investment.

APPENDIX A

Guidelines Governing the Use of NCRMP Funds by Agencies Employing Diabetes Teaching Nurses

The following guidelines were agreed upon by both the staff of the Diabetes Project and by the hiring agency at the time each of the Phase II sites were established:

OBJECTIVES

To improve diabetic care by:

1. Providing direct patient teaching to diabetics and their families.
2. Providing inservice education and consultation to other members of the health team.
3. Stimulating community interest and activity in the area of diabetes.

THE DIABETES COMMITTEE

A local Diabetes Committee shall be formulated as follows:

1. This committee shall be composed of a minimum of three persons, including a physician (representing the local Medical Society), a nurse and a dietitian. The agency which employs the Diabetes Teaching Nurse must be represented on the committee, and the Educational Director of the Diabetes Consultation and Education Service shall be an ex officio member.
2. The purposes of the committee shall be to:
    a. Make recommendations and/or assist the employing agency in:
        (1) establishing a Diabetes Teaching Nurse (DTN) postition within the community.
        (2) determining the lines of authority appropriate to the DTN position.
        (3) selecting a nurse to fill the DTN position.
        (4) program planning and development.
        (5) evaluating the program on the local level.
    b. Establish guidelines within which the DTN will be expected to function, particularly in relation to referrals, reporting, etc.
    c. Provide ongoing guidance as needed.
3. A list of the committee members and a copy of the policies drawn up by the committee shall be submitted to and approved by the central office staff of the Diabetes Consultation and Education Service in order to assure their compatability with the intent of the project proposal.

EMPLOYMENT OF THE DIABETES TEACHING NURSE

1. The choice of a DTN must be approved by the local Diabetes Committee and by the Educational Director of the Diabetes Consultation and Education Service, as well as by the employing agency itself.

2. The DTN shall be employed by a local health-care agency, and shall be subject to the personnel policies of that agency.

3. The employing agency is expected to demonstrate a willingness to assume support of the DTN's work (modified according to current need) once RMP funding is withdrawn.

4. The DTN shall meet the following qualifications:

   a. She must be registered to practice nursing in the state of North Carolina.

   b. She shall be acceptable to the employing agency for practice as a staff nurse. If further preparation or refresher courses (in areas other than diabetes) are deemed necessary, the sponsoring institution shall make such provision as is required to meet this need. (The Diabetes Service staff will be responsible for providing the DTN with the necessary orientation related to the specific area of diabetes.)

   c. Her nursing preparation may be either at the diploma, AD, or baccalaureate level or beyond. Preparation beyond the basic diploma or AD level is desirable in view of the responsibilities she will be expected to assume for staff inservice education, etc.

   Employment of nurses who are not otherwise employed will be encouraged.

5. A faculty appointment for the DTN with a nearby school of nursing will be sought when the nurse meets the criteria for such appointment and when opportunity is available.

DTN JOB DESCRIPTION

In carrying out her responsibilities to the Diabetes Service of the North Carolina Regional Medical Program, the DTN is expected to function in the areas of patient teaching, inservice education and community activity. Priorities for the nurse's time should be determined by the DTN herself, with advice from her local Diabetes Committee and from the Educational Director of the Diabetes Service.

The impact that each activity will have an over-all diabetic care should be a major factor in determining priorities in the nurse's use of her time. Whereas during the initial period of her employment as a DTN (the first 4-6 months) she may need to put a high priority on individual patient teaching in order to develop her own expertise in this area; after the 6-month orientation phase a greater total impact may be made by focusing more on group education, education of other members of the health team, and broad-spectrum community activities.

The DTN is expected to function both within the employing institution and in the community at large. This may well include travel to other counties within her region of the state.

More specifically, the DTN is expected to carry out the following major activities:

1. Teach patients and their families according to the guidelines laid down by her local Diabetes Committee.

2. Provide inservice education and consultation to other members of the health team.

3. Stimulate community interest and activity in the area of diabetes. This may take such forms as:

    a. working with professional and lay persons in promoting and participating in the formation and functioning of local chapters

    b. working with other members of the health team (pharmacists, dietitians, etc.) to promote patient welfare and continuity of care.

    c. speaking before lay groups.

    d. planning or assisting with programs for diabetic screening.

In addition to the above, the DTN shall:

1. Keep up to date in nursing, and specifically in the area of diabetic care. This will include attending programs relative to the field of diabetic care and teaching.

2. Establish relationships with other community agencies and attempt to cooperate with them when appropriate.

3. Keep records of her activities as required by the Diabetes Service.

4. Have the freedom to maintain flexible hours as determined by the demands of her work.

APPENDIX B

Content of Orientation Programs and DTN Workshops

Listed below are topic outlines for the orientation session and subsequent workshops which have been held since the Phase II nurses were employed. In addition to these programs, several of the DTNs attended one or more of the Allied Health Postgraduate Courses In Diabetes which are sponsored yearly by the American Diabetes Association. Additional assistance with individual problems was provided in conjunction with frequent site visits by the Educational Director of the Diabetes Project.

Orientation (3½ days)

	Presented by:
History of the Diabetes Project and the North Carolina Diabetes Association	Project Coordinator and NCDA secretary
The North Carolina Regional Medical Program . .	Director for Professional Services at NCRMP (nurse)
The Need for Nursing Assessment and Teaching . .	Educational Director of the Diabetes Project (nurse)
Urine Testing	Representatives from Ames and Lilly Companies
Field experience in a diabetes clinic (interviewing patients using the Assessment Guides developed by the Diabetes Project)	
Discussion of field experience	Educational Director of the Diabetes Project (nurse)
Diabetes: Pathology, Diagnosis & Treatment . .	Pediatric Endocrinologist
The Diabetic Diet	Nutritionist
Nursing Needs of Diabetic Patients	Educational Director of the Diabetes Project (nurse)
Review of Materials: Literature, Visual Aids, Supplies (Samples were removed from files and made available for review)	
Discussion: Use of Materials in Teaching . . .	"
Overview of DTN functions; Record keeping . . .	"

	Presented by:
DTN WORKSHOP #1 (1½ days)	
Reports from DTN sites; Discussion . . . . . (This was a sharing session which constituted about half the workshop.)	All DTNs
Medicare, Medicaid, and Other Community Resources .	Social Worker
Reports: Third Allied Health Postgraduate Course in Diabetes	3 DTNs who had attended
Looking Toward the Future (Planning for future workshops, etc.)	Educational Director of Diabetes Project (nurse)
DTN WORKSHOP #2 (1½ days)	
Reports from DTN sites; Discussion . . . . . (This was shortened -- limited to one afternoon, and it was a mistake to do so.)	All DTNs
A Newly-Developed Slide Series -- Foot Care (This series had been prepared by the nurse who presented it.)	DTN
Determining the Effectiveness of Diabetes Teaching . . . . . (Discussion of a proposed study)	Director, Planning & Evaluation Division, NC Regional Medical Progra
Problems in the Clinical Use of Insulin	Clinical Pharmacist
Increasing Teaching Effectiveness	Educational Director of Diabetes Project (nurse)
DTN WORKSHOP #3 (2½ days -- by popular request)	
Reports from DTN sites; Discussion . . . . . (This time a full day was devoted to this)	All DTNs
Behavioral Objectives -- the Beginning and the End .	Educational Director of Diabetes Project (nurse)
Some Blocks to Teaching and Learning	"
Getting Patients Involved in the Learning Process .	"
Teaching Techniques	"

DTN WORKSHOP #4 (2 days)	Presented by:
Reports from DTN sites; Discussion (one full day)	All DTNs
Food Planning for Low-Income Families.	Nutrition Co-ordinator NC Dept. of Agriculture
Utilizing Non-Professionals for Diet Supervision and Teaching	Foods and Nutrition Specialist Agricultural Extension Service (nutritionist) and Educational Director of Diabetes Project (nurse)
Diet Doldrums: How a Diabetic Dietitian Avoids Them	Diabetic dietitian

APPENDIX 4

ROLE OF THE STATE AND LOCAL DEPARTMENTS OF HEALTH IN EDUCATION IN DIABETES MELLITUS

ASTHO Health Program Reporting System Project
IV-A. Follow-up Services Provided by SHAs, FY 1974

State	Follow-up/ Treatment Clinics		Identifiable Health Education and Patient Education Services						Registry	
	Provided	Persons Served	General Health Education	Diet Counseling	Foot Care	Family Planning/ Genetic Counseling	Eye Health	Other	Manual	Computerized
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Alabama	-	-	-	-	-	-	-	-	-	-
Alaska	-	-	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-	-	-
Arkansas	-	-	-	-	-	X	-	-	-	-
California	-	-	-	-	-	-	-	-	-	-
Colorado	-	-	X	-	-	X	-	-	-	-
Connecticut	-	-	X	-	-	-	-	-	-	-
Delaware	-	-	X	X	X	-	-	-	-	-
D. of C.	X	-	X	X	X	-	X	-	-	-
Florida	X	-	X	X	X	-	-	-	X	-
Georgia	X	419	X	X	X	-	-	-	-	-
Hawaii	-	-	X	X	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	-
Illinois	-	-	X	X	-	-	X	-	-	-
Indiana	-	-	X	X	X	X	X	-	-	-
Iowa	-	-	X	X	-	X	-	-	-	-
Kansas	X	-	X	X	X	X	X	X	-	-
Kentucky	X	-	X	-	-	-	-	-	-	-
Louisiana	-	-	X	X	-	-	-	-	-	-
Maine	-	-	-	-	-	-	-	-	-	-
Maryland	X	-	-	-	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	-	-	-	-	-
Michigan	-	-	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-	-	-
Mississippi	-	-	X	X	X	X	X	-	X	-
Missouri	-	-	-	-	-	-	-	-	-	-
Montana	-	-	X	-	-	-	-	-	-	-
Nebraska	X	-	-	-	-	-	-	-	-	-
Nevada	-	-	X	X	-	-	-	-	-	-
New Hampshire	X	1,275	X	X	X	-	-	-	X	-

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
New Jersey	-	-	X	X	X	-	-	X	-	-
New Mexico	-	-	-	-	-	-	-	-	-	-
New York	X	-	X	X	X	X	X	-	-	-
No. Carolina	-	-	X	X	X	X	-	-	-	-
No. Dakota	-	-	X	X	X	X	-	-	-	-
Ohio	-	-	X	X	-	-	-	-	-	-
Oklahoma	-	-	X	X	X	X	-	-	-	-
Oregon	X	70	X	X	X	-	X	-	-	-
Pennsylvania	X	338	X	X	-	-	-	-	-	-
Rhode Island	-	-	X	X	-	X	-	-	-	-
So. Carolina	X	1,000	X	X	X	X	-	-	-	-
So. Dakota	-	-	-	-	-	-	-	-	-	-
Tennessee	-	-	X	X	X	X	X	-	-	-
Texas	-	-	X	X	X	-	-	-	-	-
Utah	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	X	X	X	X	X	-	-	-
Virginia	-	-	-	-	-	-	-	-	-	-
Washington	-	-	-	-	-	-	-	-	-	-
W. Virginia	-	-	-	-	-	-	-	-	-	-
Wisconsin	-	-	X	X	-	-	-	-	-	-
Wyoming	-	-	X	X	-	X	-	-	-	-
Territories										
Guam										
Puerto Rico	X	54,000	X	X	X	-	X	-	-	-
Trust Terr.										
Virgin Islands										
U. S. Total	13	57,102	33	29	19	16	10	2	3	0

Key: X = Yes
- = Zero, No, or No Response

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Table IV-B. Follow-up Services Provided by Other Agencies, FY 1974

State	Follow-up/ Treatment Clinics		Identifiable Health Education and Patient Education Services					
	Provided	Persons Served	General Health Education	Diet Counseling	Foot Care	Family Planning/ Genetic Counseling	Eye Health	Other
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Alabama	-	-	X	-	-	-	-	-
Alaska	-	-	X	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-
Arkansas	-	-	X	X	-	X	-	-
California	X	-	X	X	X	X	X	-
Colorado	-	-	X	X	X	-	X	-
Connecticut	-	-	-	-	-	-	-	-
Delaware	-	-	X	X	-	-	-	-
D. of C.	-	-	-	-	-	-	-	-
Florida	X	14,000	X	X	X	-	-	-
Georgia	-	-	-	-	-	-	-	-
Hawaii	X	300	X	X	X	-	-	-
Idaho	-	-	X	X	X	-	-	-
Illinois	X	-	X	X	X	-	X	-
Indiana	-	-	-	-	-	-	-	-
Iowa	X	-	X	X	-	X	X	-
Kansas	X	-	-	-	-	-	-	-
Kentucky	X	781	X	X	X	X	X	-
Louisiana	-	-	X	X	X	X	X	-
Maine	X	-	-	-	-	-	-	-
Maryland	-	-	X	X	-	-	-	-
Massachusetts	X	-	-	-	-	-	-	-
Michigan	-	-	X	X	-	-	-	-
Minnesota	X	450	X	-	-	-	-	-
Mississippi	-	-	-	-	-	-	-	X
Missouri	X	-	X	X	X	-	X	-
Montana	X	-	X	X	-	-	-	-
Nebraska	X	-	X	X	X	-	-	-
Nevada	-	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
New Jersey	X	-	X	X	X	X	-	X	-
New Mexico	-	-	-	-	-	-	-	-	-
New York	X	-	X	X	X	X	-	-	-
No. Carolina	-	-	-	-	-	-	-	-	-
No. Dakota	-	-	X	X	X	X	-	-	-
Ohio	X	-	-	-	-	-	-	-	-
Oklahoma	-	-	X	X	-	-	-	-	-
Oregon	X	-	-	-	-	-	-	-	-
Pennsylvania	X	-	X	X	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-	-	-
So. Carolina	-	-	-	-	-	-	-	-	-
So. Dakota	-	-	X	X	-	-	-	-	-
Tennessee	-	-	X	X	X	X	X	-	-
Texas	-	-	X	X	X	X	-	-	-
Utah	-	-	-	-	-	-	-	-	-
Vermont	X	-	-	-	-	-	-	-	-
Virginia	-	-	-	-	-	-	-	-	-
Washington	-	-	X	X	X	X	X	X	X
W. Virginia	-	-	-	-	X	X	-	X	X
Wisconsin	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-
Territories									
Guam									
Puerto Rico	X	-	-	-	-	-	-	-	-
Trust Terr.									
Virgin Islands									
U. S. Total	20	15,531	28	25	17	7	10	2	

Key: X = Yes
- = Zero, No, or No Response

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Table VII. Resources Expended for Diabetes Activities by Agencies, FY 1974

State	SHA		Additional LHD		Voluntary Agencies		Other State Agencies	
	Expenditures (in dollars)	Manpower (in man-years)	Expenditures (in dollars)	Manpower (in man-years)	Expenditures (in dollars)	Manpower (in man-years)	Expenditures (in dollars)	Manpower (in man-years)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Alabama	-	-	-	-	-	-	-	-
Alaska	-	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-	-
Arkansas	65,312	3.4	-	-	-	-	-	-
California	1,500	-	-	-	-	-	-	-
Colorado	12,000	0.25	-	-	49,000	2.0	200,000	10.0
Connecticut	5,190	2.0	-	-	-	-	-	-
Delaware	-	-	-	-	-	-	-	-
D. of C.	-	-	-	-	-	-	-	-
Florida	134,400	2.0	200,000	20.0	-	-	-	-
Georgia	-	-	-	-	-	-	-	-
Hawaii	10,000	1.0	-	-	-	-	-	-
Idaho	-	-	12,030	0.82	-	-	-	-
Illinois	-	-	61,500	-	-	-	-	-
Indiana	1,025	0.1	-	-	-	-	-	-
Iowa	-	-	-	-	3,424	1.5	-	-
Kansas	-	-	-	-	-	-	-	-
Kentucky	35,434	2.5	275,356	8.14	-	-	-	-
Louisiana	-	-	-	-	-	-	-	-
Maine	-	-	-	-	-	-	-	-
Maryland	3,000	-	-	-	-	-	-	-
Massachusetts	-	-	-	-	-	-	-	-
Michigan	-	-	-	-	-	-	-	-
Minnesota	-	-	-	-	-	-	-	-
Mississippi	-	-	-	-	-	-	-	-
Missouri	9,000	-	-	-	130,600	-	-	-
Montana	-	-	-	-	-	-	-	-
Nebraska	-	-	-	-	-	-	18,702	1.75
Nevada	160	0.01	-	-	-	-	-	-

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
New Jersey		12,500	-						
New Mexico		-	-	-	-	-	-	-	-
New York		-	-	-	-	5,124	-	-	-
No. Carolina		110,781	-	-	-	-	-	-	-
No. Dakota		-	-	-	-	-	-	-	-
Ohio		-	-	-	-	-	-	-	-
Oklahoma		60,000	-	-	-	-	-	-	-
Oregon		48,725	2.15	-	-	-	-	-	-
Pennsylvania		65,000	6.0	-	-	-	-	-	-
Rhode Island		-	-	-	-	-	-	-	-
So. Carolina		75,000	5.0	30,000	3.0				
So. Dakota		-	-	-	-	-	-	-	-
Tennessee		12,660	-	-	-	7,500	-	-	-
Texas		109,088	-	-	-	-	-	-	-
Utah		-	-	-	-	-	-	-	-
Vermont		39,560	3.0						
Virginia		51,827	-	-	-	300*	0.1		
Washington		-	-	-	-	-	-	-	-
W. Virginia		-	-	-	-	48,000	2.0	-	-
Wisconsin		94,997	5.5	-	-	7,966	-	-	-
Wyoming		-	-	-	-	-	-	-	-
Territories									
Guam									
Puerto Rico		130,000	10.0	-	-	1,600	-	20,000	0.6
Trust Terr.									
Virgin Islands									
U. S. Total		1,124,519	42.91	578,886	31.96	253,514	5.6	238,702	12.85

* Estimated at between 200-300.

Key: X = Yes
- = Zero, No, or No Response

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Table VIII. Characteristics of Diabetes Coordinators in SHAs

State	Designated Diabetes Coordinator in SHA	Coordinator					
		Limits Responsibilities to Diabetes	M.D.-D.O.	SHA Employee	Consultant to SHA	Full-time	Part-time
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Alabama	-	-	-	-	-	-	-
Alaska	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	-
Arkansas	X	-	X	X	-	X	-
California	-	-	-	-	-	-	-
Colorado	X	-	X	-	-	X	-
Connecticut	X	-	X	-	-	-	X
Delaware	-	-	-	-	-	-	-
D. of C.	X	-	-	X	-	-	X
Florida	X	X	-	X	-	X	-
Georgia	X	-	X	-	-	-	X
Hawaii	X	-	X	-	-	-	X
Idaho	-	-	-	-	-	-	-
Illinois	X	-	-	X	-	X	-
Indiana	X	-	-	X	-	X	-
Iowa	-	-	-	-	-	-	-
Kansas	-	-	-	-	-	-	-
Kentucky	X	-	-	X	-	X	-
Louisiana	-	-	-	-	-	-	-
Maine	-	-	-	-	-	-	-
Maryland	X	-	X	-	-	-	-
Massachusetts	-	-	-	-	-	-	-
Michigan	X	-	X	X	-	X	-
Minnesota	-	-	-	-	-	-	-
Mississippi	X	-	X	X	-	X	-
Missouri	X	-	-	X	-	X	-
Montana	X	-	X	-	-	X	-
Nebraska	-	-	-	-	-	-	-
Nevada	-	-	-	-	-	-	-
New Hampshire	X	-	-	X	-	X	-

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
New Jersey	X	-	X	X	X	-	-	X
New Mexico	-	-	-	-	-	-	-	-
New York	-	-	-	-	-	-	-	-
No. Carolina	X	-	-	-	X	-	X	-
No. Dakota	-	-	-	-	-	-	-	-
Ohio	X	-	X	-	X	-	X	-
Oklahoma	X	-	-	X	X	-	X	-
Oregon	X	-	X	-	X	-	X	-
Pennsylvania	X	-	-	X	-	-	X	-
Rhode Island	X	-	X	-	-	-	X	-
So. Carolina	X	-	X	X	-	-	-	-
So. Dakota	-	-	-	-	-	-	X	-
Tennessee	X	-	-	-	X	-	-	-
Texas	X	X	X	X	X	-	X	-
Utah	-	-	-	-	-	-	-	-
Vermont	X	-	-	-	-	-	X	-
Virginia	X	-	X	X	-	-	X	-
Washington	-	-	-	-	-	-	-	-
W. Virginia	-	-	-	-	-	-	-	-
Wisconsin	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-
Territories								
Guam								
Puerto Rico	X	X	X	-	X	-	X	
Trust Terr.								
Virgin Islands								
U. S. Total	29	4	17	19	1	22	6*	

Key: X = Yes
- = Zero, No, or No Response

TABLE I

PROGRAMS OFFERING DIABETES SCREENING SERVICES--SERVICES AVAILABLE, PROGRAM EXPENDITURES, AND LOCAL HEALTH DEPARTMENT (LHD) INCLUSION

FISCAL YEAR 1974

State and Program Name	Screening for Diabetes	Auxiliary Services	Total Expenditures ($1000's)	LHD Inclusion	Additional Local Funds ($1000's)
Kentucky--Preventive Services--Diabetes Unit	X	Laboratory for screening, Health Education and Training, U*	42	X	33
Missouri--Diabetes	X		16	X	No response
Rhode Island--Diabetes Screening	X	Health Education and Training, U	31	No locals	
Tennessee--Diabetes detection	X	Public Health Nursing	83	X	Not available
Texas--Chronic disease	X	Health Education and Training, U	86	X	Not pertinent
Virginia--Diabetes screening	X		52	X	No response
Puerto Rico--Chronic Disease Diabetes	X	Nutrition Services, U	130	No locals	
Total	7		440		$33

*U= Other unspecified services also offered

Data Source for Tables: The Association of State and Territorial Health Officials Health Program Reporting System

Diabetes Programs in New Jersey

Arthur Krosnick, M.D.

Background

In 1952, the New Jersey State Legislature approved a "Prevention of Chronic Illness Act" which mandated the New Jersey State Department of Health to organize a "Division of Chronic Illness Control" and to engage in certain public health activities and services including:

1.) case-finding
2.) public information
3.) professional education
4.) patient education
5.) research and epidemiological studies

A diabetes control program was instituted as a unit of that division and I have been its coordinator since 1954.

In 1974, the 93rd Congress of the United States enacted the "National Diabetes Mellitus Research and Education Act" (Public Law 93-354) which directly led to this convocation in Los Angeles. A review of the purpose of the federal law reveals a similarity in its mandates to our state law, which gave us a twenty-year headstart.

A brief review of the highlights of our New Jersey experience of the past two decades will display my concept of the role of local and state departments of health in the education of professionals, patients, and the nonprofessional public.

Case-Finding and Public Information

Based on the public health research and teachings of Dr. Hugh Wilkerson, our case-finding activities successively utilized urine testing (Clinitest^{R} and fresh urine samples; Dreypaks) and later blood glucose determinations by methods which gradually became more sensitive, more specific, and more accurate. We have used the Hewson Clinitron^{R} with the Wilkerson-Heftman blood glucose test, the Glover-Edwards glucose test kit, the Technicon Autoanalyzer^{R} and the Ames Reflectance Meter^{R} with the Dextrostix^{R} system for screening purposes.

Our staff learned quickly that a positive screening test did not establish the diagnosis of diabetes and we also learned that the non-professional public needed a reason to participate in a testing program. More importantly, the public needed to be informed and encouraged to have a follow-up retest, including a glucose tolerance test, if diabetes were to be established or ruled out. Therefore, our public information approach, from the beginning, emphasized "high-risk screening" (persons over 40, related to a known diabetic, overweight, or mothers of large babies). We took advantage of the American Diabetes Association "Diabetes Detection Week," but we also embarked on a year-round screening as well.

We published pamphlets, posters, and booklets which were distributed in large numbers, and we engaged in radio and television programs, newspaper releases, public meetings on diabetes, and other public relations activities. We organized the state program, in conjunction with the New Jersey Diabetes Association, The Medical Society of New Jersey, and the New Jersey Osteopathic Association, under a county medical society committee system. Local departments of health participated in every phase of this annual project; especially important were the public health nurses who visited positive screenees to explain the meaning of the test results and the need for follow-up diagnostic studies and to leave literature on diabetes in the home.

In my opinion this approach to case-finding and education germinated an interest in diabetes and diabetes detection in the New Jersey public's mind long before Dr. Marcus Welby came into being.

Professional Education

From the beginning, it was clear that case-finding and public information projects could not and should not succeed without professional participation, especially by physicians. To get appropriate follow-up without recriminations and universal physician participation, the physicians of New Jersey were made to realize that this was their program, as well as a public health service. Each physician received personal letters and literature and announcements in his journals. We soon found the doctors willing to provide definitive studies and to report the results and final diagnosis to our office. A large "plus" at that time was our ability to arrange for a public health nurse visit to the recalcitrant diabetes suspect, if the physician wished.

It was also clear that the professionals -- nurses and physicians (and later nutritionists, dentists, and podiatrists) -- wanted and needed more scientific information in order to provide better health services. To that end, we expanded our approach and over time engaged in the following pursuits:

1.) Biannual statewide symposia on diabetes for physicians.
2.) Periodic symposia for dentists, podiatrists, nurses, and nutritionists on a statewide or district basis.
3.) Production of motion picture films ("Diabetes and Its Long Range Control," "How To Take Care of Diabetes," and "Quiet Victory").
4.) Development of a programmed instruction course utilizing the AutotutorR and TutorfilmR.
5.) Publication of a booklet, "Diabetes and Its Long Range Control," for physicians and one for nurses, "The Nurse and Diabetes Control."
6.) Publications on diabetes epidemiology, diagnostic criteria, and treatment for all professionals.
7.) Tapes by phone for physicians in conjunction with a Regional Medical Program activity.

In 1963, the USPHS Diabetes and Arthritis Program engaged us to provide formal diabetes training programs for federal and state public health representatives who then disseminated across the country to instigate similar diabetes programs -- with more or less success -- at state and local levels. Since then our interests have turned toward the training and subsequent introduction of diabetes nurse specialists and physician assistants. Livingston College will enroll its first four-year students in the P.A. training course in 1975, and we anticipate they, like diabetes nurse specialists, will play a large role in patient care and education.

Patient Education

From the beginning, it was necessary to consider the educational needs of the diabetic patients discovered in our case-finding program. Physicians, then, tended to take a casual disinterested swipe at education by handing out printed diets and little else. As specific needs were apparent, we expanded our state efforts in a number of directions:

.) ADA diet exchange booklets and lists were purchased and disseminated.
.) An original foot care pamphlet for diabetics was published. (It was so successful that it was taken over by the U.S. Government Printing Office.)

3.) "Diabetics Unknown," a film for patients, families, and others was prepared.
4.) Campe Nejeda, as an educational source for children with diabetes in New Jersey, was assisted.
5.) Diet counseling services were organized in a number of counties.
6.) Public health nursing agencies were organized to give home instruction in self-management procedures to patients and families with diabetes.
7.) A "Diabetes Tapes by Phone" series in English and Spanish was developed and made available throughout the state. The texts of the cassette-recorded lectures were printed in booklet form and distributed.
8.) A number of hospitals were assisted in the development of ambulatory patient education centers through grants-in-aid.

Most recently, we have been engaged in the development of the "contract approach" to diabetes patient education and management. Our preliminary subjective analysis of this approach is that it will be a suitable means to stimulate a higher level of patient compliance, through a change in behavior, and it will afford a well organized educational system with divided responsibilities.

Our current preoccupation, in the realm of patient education, has to do with the concept of third party payment for ambulatory diabetic patient education programs. As a member of an American Diabetes Association task force, I am exploring the route by which we can demonstrate improvement in the cost/benefit ratio of ambulatory education vs. hospital patient education, which is the standard approach at present.

Resources

From my discussion of our activities since 1954, you may agree that New Jersey is "just what the doctor ordered" in terms of P.L. 93-354 and, hopefully, in terms of future legislation which may provide assistance at the state and local level for the development of Diabetes Education and Treatment Centers. Specifically, our present resources include the following:

1.) A state population which is attuned to the concept of diabetes detection and education.
2.) A professional pool which is aware of the inadequacy of existing patient education techniques and is looking for systematic guidance.

3.) A State Health Department Diabetes Control Program with twenty years' experience, and a crusader's belief in the advancement of diabetes education.
4.) Many local and county health departments with experience and interest in diabetes.

There are many institutional education programs for in-patients and a few ambulatory education programs, which are fragmented or incomplete because of the lack of financial resources. Two Health Maintenance Organizations have beginning programs and a number of burgeoning HMO's have plans which include ambulatory patient education.

The best organized, at present, is the statewide network of health education programs through the Office of Consumer Health Education of the College of Medicine and Dentistry of New Jersey. Through grants from OCHE, health education programs have been started at Monmouth Medical Center (Long Branch), Morristown Memorial Hospital (Morristown), Our Lady of Lourdes Hospital (Camden), St. Francis Hospital (Trenton), Greystone Psychiatric Hospital (Greystone Park), Hackensack Hospital Association (Hackensack), Hunterdon Medical Center (Flemington), Overlook Hospital (Summit), Mainland Medical Center (Northfield), and the Phillips-Barber Family Health Center (Lambertville). These institutions are scattered about New Jersey and are ideal for the development of comprehensive diabetes education and treatment centers. Other qualified institutions are waiting in the wings hoping to be called upon.

The resources of our state, like those of many other states, need only the appropriate financial catalysts to spring into action and the long-term support of third party payers to deliver the educational results we all hope for.

DIABETES IN THE FIELD

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In organizing programs for the education and care of diabetic patients a set of guidelines must be followed in order to identify the needs for such a program by a given city, region or state and accordingly methods to be used must satisfy and meet the needs of the diabetic population of the given region. This challenge has been met by the Diabetes State Program of Puerto Rico. Our aim in this article is to present the organization and functioning of our education and detection program, which may serve as a model to groups interested in planning for the education of diabetic patients on a regional scope. As a background we must describe the organization of the health delivery in Puerto Rico and the nature of the diabetic population we serve.

Regionalization of Medical Care in Puerto Rico

Puerto Rico is an island with an area of 3,423 square miles and a population of 2,824,631 (1).

In the mid-fifties the Department of Health of Puerto Rico organized a regionalized health care for the indigent population of Puerto Rico, which comprises 60% of our population. The island was divided in five medical regions (North, Northeastern, Eastern, Southern, and Western). Subsequently, the Northeastern region has been divided in three subregions with a base hospital each and a new region was created to comprise seven towns of the eastern and southern region. Each medical region and subregion has a base hospital and anywhere from six to eighteen satellite health centers and Municipal Hospitals in the towns comprising the medical region.

The base hospital is a referral hospital for the satellite health center and offers specialized services in the specialties of Medicine, Surgery, Pediatrics, Obstetrics, and Gynecology and their subspecialties. The health centers provide outpatient facilities and a limited number of beds for short term admissions. The physicians in charge of the medical care in the health centers are general practitioners most of which are foreign graduates. In this set up of regionalized health care the University Hospital is the base hospital for a subregion of the Northeastern region of Puerto Rico. This regionalized health care existed in Puerto Rico for over ten years by the time that the Regional Medical Programs started in the mainland.

Diabetes as a Health Problem in Puerto Rico

Chronic diseases are the predominant disablers and killers in Puerto Rico as well as in the mainland. Diabetes mellitus was listed as the fourteenth cause of death in 1960 with a rate of 10.6 deaths per 100,000 population. In 1967 it moved to the ninth place with a rate of

16.3 deaths per 100,000 population and in 1969 it moved to the sixth place with a rate of 27.7 deaths per 100,000 population (2). This mortality comprises death certificates in which diabetes mellitus appears as the cause of death but excludes those in which the disease might have contributed to the episode.

The increase in the mortality rate in the past three decades is due to various factors. First, the improvement of the medical care in Puerto Rico has increased the span of life; in 1940 the average span of life was 46.01 years while in 1969 it was 70 years (2). Diabetes prevalence rate increases with age having a peak in the sixth to eighth decade of life. In 1969 the number of deaths increased in the age group over 40 having a peak incidence in the age group over 75 years. Second, in the last three decades there is more awareness in the part of the medical and paramedical profession about diabetes mellitus, its diagnosis and treatment; thus this has contributed to the earlier diagnosis of the disease. Third, efforts are being made by the Department of Health to diagnose the hidden diabetic through detection programs.

The prevalence rate for diabetes mellitus in Puerto Rico is approximately three percent in the adult population. Forty percent of the population of Puerto Rico is older than 30 years. In this age group we calculate we may have about 36,000 diagnosed diabetics in Puerto Rico and about the same number undiagnosed. A registry of the diabetics will give us a more accurate figure, for we believe it is much larger than this in the overall population.

Planning a Program to Meet the Need

Through questionnaires, local visits and study of the referrals to the base hospitals, the needs for the ultimate care of the diabetic in the health centers and community hospitals were studied and identified. The most striking findings included: (1) lack of evidence regarding a continuing medical education of the physicians and nurses in charge of the care of the patient, (2) unavailability of an education program for the diabetic in any of the health centers as reflected by long trips of the patient to the health centers daily to receive their daily insulin injections for they did not know how to self administer the insulin, and numerous referrals to the base hospital of patients with diabetic acidosis, undiagnosed hypoglycemia, cellulitis and gangrene, progressive blindness and uncontrolled diabetes, (3) the blood glucose samples were sent to a laboratory of the Department of Health in the metropolitan area and it took about two weeks to a month for them to get the results, (4) on many health centers a dietitian was not available for dietary instruction, (5) diabetics were being seen in general medicine clinics

and an average of 30 to 40 patients were seen per clinic, and (6) medical records were extremely inadequate.

The Puerto Rico Regional Medical Program conducted a survey to gather data regarding the knowledge and attitudes of the public regarding diabetes (3). It showed that there was very little awareness in the public regarding the pathogenesis, diagnosis, treatment and complications of this disease. Thus a need existed not only to educate the medical and paramedical professionals, and the diabetic patient but the public in general.

The Diabetes State Program of Puerto Rico was thus organized in July 1970 as a joint effort of the Regional Medical Program and the Department of Health of Puerto Rico to start a project of education and detection in diabetes mellitus which in turn would improve the health delivery and care of the diabetic population in Puerto Rico.

The leadership for the organization of the program has been provided by the faculty of the section of Endocrinology of the Department of Medicine of the University of Puerto Rico School of Medicine.

The program is directed mainly to the indigent population for which delivery of health care is the responsibility of the Department of Health of Puerto Rico. Sixty percent of the diabetic population served by the University Hospital has attended school for a period of less than six years. This is more or less representative of the years of schooling which the diabetic patients have had who are taken care of in the health delivery systems of the medical regions by the Department of Health.

Objectives of the Program

The general objectives of the program include: (1) to help the diabetic patient to live with his disease and to assume primary responsibility in his own care, (2) to make an early diagnosis of diabetes mellitus in subjects at a high risk of having the disease, (3) to lower the costs of hospitalization and ambulatory care for the diabetic patient, and (4) to coordinate with the Department of Health and the medical regions of Puerto Rico the delivery of health care to the diabetic population of Puerto Rico.

The means used to achieve our goals included: (1) the organization of educational courses in Diabetes for physicians, nurses, dietitians, health educators, social workers, teachers, and above all the diabetic patient, (2) the establishment of an Education and Detection Center for diabetes mellitus in the Puerto Rico Medical Center (the latter was inaugurated in November 1971), (3) the organization of diabetes clinics

for education, treatment and detection in the health centers and community hospitals in Puerto Rico, (4) the preparation of education materials such as brochures, pamphlets, posters, and manuals about Diabetes in the Spanish language, (5) the organization of the Diabetes Lay Society for Puerto Rico (organized in November 1970), (6) the organization of summer camps for Juvenile Diabetics, and (7) the conduction of mass detection programs in the five health regions of Puerto Rico.

Methods Used to Reach the Objectives

Education Program

Courses for Physicians and Allied Health Professionals

In the programming of a course we follow the same pattern with all the groups. First we ask the medical directors of the medical regions and their corresponding health centers to fill in a questionnaire where we attempt to find out the hospital and outpatient facilities for the care of the diabetic patient in the various medical regions and in particular the hospital and health centers where the group that will take the course works. After the questionnaire is completed we visit these hospitals and health centers to study their needs.

Each of the persons who enrolls in the course fills in a questionnaire which gives us the following information: age, education, professional experience, their experience in the care of the diabetic patient, the facilities available in the health center or hospital where they work for the care of the diabetic patient, and any other miscellaneous information which they think should be given.

A pretest is given to the group in order to evaluate their knowledge and skills about Diabetes. The course lasts three days in the case of the physicians and the nurses. The methods used for teaching include: lectures, discussion periods, practical exercises, and movies. At the end of the course another test is given to evaluate the knowledge and skills that the group has learned after they have taken the course. The effect that the teaching of the individual has in the care of the diabetic at a local level is considered to be the most significant measure in the evaluation of our program.

Other groups of professionals such as health educators, dietitians, social workers, etc., who would like to take the course must apply for the same, and the same information is obtained from these individuals.

Preference is given to those allied health professionals who are involved daily in the care of diabetic patients.

The course is given either in the Diabetes Education and Detection Center or in the Base Regional Hospitals.

Education of the Diabetic Patient

The education of Diabetics is given in the Diabetes Education and Detection Center and in the Diabetes Clinics organized in the various medical regions and health centers.

Education Clinics in the Diabetes Education and Detection Center

The patients referred to our Center attend the clinics every two weeks for a period of eight to twelve sessions, and for a total of 32 to 48 hours. They come fasting in the morning for blood sugar and urine analysis, inject their insulin under direct nurse supervision and have breakfast under the supervision and guidance of the dietitian. Lectures, demonstrations, and group discussions are given for an hour, followed by personal interviews with the physicians, nurses, dietitians, and social workers. After the course they are referred back to the local health centers. Follow up is given at three months, six months, and a year later. Already 309 diabetic patients have participated in our clinics.

These clinics have proven to be an ideal workshop for the training of medical students, residents in Medicine, students of Public Health, nurses and dietitians.

Following our example, the physicians and nurses who have taken our course have organized education programs in the local health centers and hospitals.

Organization of Diabetic Clinics

One afternoon a week is used by the medical and paramedical personnel of our program to visit the diabetic clinics being organized in the health centers. The personnel provides orientation and guidance to the

medical and paramedical personnel at a local level. The program provides them with educational material for the patient, the paramedical and the medical personnel.

Our paramedical personnel participates actively in the education program.

Education to the Public

Our program gives conferences and seminars to all civic groups and institutions interested. It has presented numerous television educational programs, radio and press communications.

Development of Audiovisual Material

Brochures and educational pamphlets in the Spanish language have been prepared which are made available to the public in general. We have received requests for our material from other Spanish speaking countries and from clinics in the mainland who take care of Spanish speaking people.

Detection Program

A continuous detection program is available to the public in the Diabetes Education and Detection Center and mass detection programs are conducted yearly during the Diabetes week.

Resources Available

In 1970 two-thirds of the budgetary needs of the program were provided by the Department of Health and one-third by the Regional Medical Program. With the phasing out of the Regional Medical Program the Department of Health has provided additional funds to absorb the costs in toto. The School of Medicine contributes the salary of the Program Director and one of the Co-Directors. The total yearly budget amounts to approximately $150,000.

The program counts with three physicians, one director, and two co-directors, two secretaries, three nurses, two dietitians, one technologist, one epidemiologist, one social worker, and one laboratory aide.

Accomplishments

During the last three years, the Diabetes State Program of Puerto Rico has developed a comprehensive program including education, detection and service.

The general accomplishments can be summarized as follows: (1) specialists in Diabetes who previously were confined to the narrow walls of a School of Medicine have become involved in the health delivery and care of the diabetic patient in Puerto Rico. In other words, the excellence of teaching, service, and research, which exists in the academia have been made available to the people of Puerto Rico, (2) a continuing Medical Education program is available to update physicians and allied health professionals, such as nurses, nutritionists, dietitians, health educators, social workers, and administrators on the basic concepts of pathogenesis, diagnosis, treatment, and complications of diabetes mellitus, (3) creation of a Diabetes Education and Detection Center which serves as the base of operation of the continuing medical education and service program, (4) for the first time in Puerto Rico we have a team working with the diabetic patient, which includes physicians, nurses, dietitians, epidemiologist, and social worker.

Table I shows the medical and paramedical personnel who have attended our courses and their regional distribution. In the last four years we have concentrated our effort in the northeastern, north, eastern, and western medical region, reason why very few have been trained in the southern medical region. A total of 810 professionals have attended our courses.

So far 50 diabetes clinics have been organized. Their distribution is as follows: 12 in the northeastern region, 10 in the northern region, 14 in the eastern region, and 14 in the western region.

Table 11 shows the total of yearly detection tests that have been performed in the past four years and the outcome. We use the two hour post prandial blood glucose. The results are sent to the positive and and doubtful cases with a return slip in which we should be informed if the new patient has already looked for medical care and in which we request the doubtful case to come to our clinic for an oral GTT. If we don't get a reply the epidemiologist visits them at home for orientation and guidance.

Two accomplishments which have been of enormous impact in the achievement of our goals include the organization of the Diabetes Lay society and the organization of summer camps for juvenile patients for the past three years.

Concluding Remark

It has been our purpose to show how an education program can be developed integrated to the delivery of patient care in a system of health care where the State is responsible for the health delivery of most of the population.

Table I

DIABETES STATE PROGRAM

Professionals Participating in Diabetes Courses
1974-75

Region	Physi-cians	Nurses	Dietitians	Health Educators	Adminis-trators	Other	Total
North	34	23	54	4	1	1	117
Northeast	30	178	95	2	-	-	305
East	33	73	15	1	7	-	129
South	1	-	13	-	-	-	14
West	32	119	6	3	-	-	160
Caguas Subregion	5	36	14	-	-	-	55
	135	429	197	10	8	1	780

Table II

DIABETES STATE PROGRAM

Detection Program
(1970-75)

	Total	Positive	Doubtful	Negative	Known Diabetic	Percentage Positive
1970-71	3,742	233	156	3,231	122	6.4%
1971-72	3,711	194	89	3,145	283	5.7%
1972-73	5,393	311	146	4,521	415	5.7%
1973-74	4,470	252	86	3,473	659	7.0%
1974	7,085	364	306	4,807	1,578	5.8%
TOTAL	24,401	1,354	783	19,177	3,057	

REFERENCES

1. Planning Board of the Commonwealth of Puerto Rico, Report on Vital Statistics, 1973.

2. Department of Health of Puerto Rico, Commonwealth of Puerto Rico, Report on Vital Statistics, 1970.

3. Regional Medical Program of Puerto Rico, Survey about knowledge and attitude of the public regarding Heart disease, Stroke and Diabetes, 1970.

FIGURE 1



Map demonstrating the six medical regions of Puerto Rico. In parenthesis are the number of health centers and/or municipal hospitals. The islands of Vieques and Culebra have each a municipal hospital.

APPENDIX 5

JUVENILE DIABETES FOUNDATION

What You should Know About

JUVENILE DIABETES

SYMPTOMS OF DIABETES

- If you find you are *urinating frequently*, and in large quantity
- If you find you are *unusually thirsty*
- If you find you are *extremely hungry*, and very often
- If you find you are suddenly *losing weight*, for no apparent reason
- If you feel *weak, drowsy, tired*
- If your *vision changes* suddenly, and you notice blurring or other differences
- If you have *itching* of the genitals and skin
- If you develop *skin disorders* and *infections*

IF you notice one or more of these symptoms, on a recurring basis--you should see a doctor and tell him or her about them. The doctor can find out, through a simple series of tests, if you have diabetes.

WHAT IS DIABETES?

No one is sure yet as to what causes diabetes mellitus. Many people are trying to find a cure, or at least a better treatment for it. If you have it, it means that you have a metabolic disease. Metabolism is the process by which the body takes the food we eat and breaks it down into elements and compounds that the cells can use to build and repair tissue, and to produce energy to sustain life.

Our body makes a substance called glucose from the sugars and starches (carbohydrates) that we eat. In order for the body to use glucose properly, it needs insulin. Insulin regulates the amount of glucose the body makes use of. If the glucose is not used up properly, too much remains in the blood stream and is not used by the cells to produce energy. The body is then starved of that energy. The excess, or wasted, glucose then builds up in the blood stream and some of it spills out into the urine and shows up as "sugar in the urine."

People who have diabetes are not able to produce enough insulin. Some people who have diabetes can make up for this lack of insulin by keeping to a carefully restricted diet which avoids too many carbohydrates.

Some diabetics can control their blood sugar levels by taking special pills. People who have juvenile diabetes, however, are those who must take at least one injection of insulin, every day of their lives, in order to keep their metabolism functioning properly.

Most people with juvenile diabetes become diabetics when they are children. However, no matter how old they are, if they take insulin, they are always called "juvenile-type diabetics."

IF YOU HAVE DIABETES

People with juvenile diabetes have to take very good care of themselves. They must take their injections of insulin at specified times each day. They must eat at specified times, whether they are hungry or not. They must test their urine at specified times during the day. They must be alert to certain warning signs and respond to these signs very quickly.

Juvenile diabetes is not an obvious disease. It is amazing to a lot of people to discover that Jackie Robinson had diabetes, that Ron Santo and Bobby Clarke and Mary Tyler Moore and Dan Rowan have diabetes. These are people who lead unusually active and useful lives.

What's the problem, then?

To begin with, taking insulin every day is the best way we now have to give the person with diabetes the hormone his or her body does not produce on its own. But it's not a very good way. In the non-diabetic person, the amount of insulin and the amount of sugar the body needs is taken care of automatically without our being aware of it. The insulin and the sugar (glucose) are sent to different parts of the body as they are needed, depending upon what we are doing at the time. When a person has diabetes, the insulin taken at, let us say, 7 A.M. has its own time schedule. That is, it starts to act within the body according to its own time schedule and continues at its own speed, regardless of how much the person might actually need at any time. So, if a person with diabetes wants to play baseball, or go swimming, the insulin he has taken that morning doesn't take into account the extra energy that person will be putting out over the next hour. Thus, the diabetic will discover that he is burning up a lot of sugar because of the exercise he is doing, and will be left with too little sugar and too much insulin. This causes an *insulin reaction,* or hypoglycemia (low blood sugar). Since this is a dangerous situation, and the person can lose consciousness in a very short time, the diabetic learns that before he engages in any strenuous activity, he must take extra sugar into his body to make up for the sugar he will burn up while exercising. He will take some

candy or drink a Coca-Cola or eat a couple of oranges, or have something else with a lot of sugar in it.

If an insulin reaction occurs, *immediate treatment* is necessary. The person should drink orange juice or eat some candy, or take some sugar. However, if this doesn't control the reaction, or if the person becomes unconscious, an antidote called glucagon must be injected, in the same way that insulin is injected. If glucagon is not available, the person must be rushed to a hospital.

On the other hand, if a person with juvenile diabetes doesn't take his insulin, or takes too little, he or she runs into a different problem. This problem comes on more slowly. It takes many hours, or even days, but it can also cause unconsciousness. A diabetic coma occurs when too much sugar remains in the blood over too long a period of time because the body doesn't have enough insulin to use it up properly. Since the body can't use the sugar it needs for energy, it starts to "steal" energy from the fats stored in the body. This causes acids called ketones to be formed in the body. If this condition goes on too long, diabetic coma will occur.

Today, there are many different types of insulin, which serve different purposes. Depending on the life style of the diabetic, his age and his condition, one or more kinds of insulin might be used. Each type has its own characteristics, and the doctor will decide which kind the person needs to use.

Keeping the balance between sugar and insulin in the body of a diabetic person is not easy. In fact, it is the most difficult part of his day, because the levels can change for many different reasons—physical activity, illness (even a head cold), infections, periods of growth, tiredness, excitement, nervousness. These, and other things the person might not even be aware of, affect the balance. That is why a person taking insulin must carry a supply of sugar or candy with him at all times. He should always have orange juice (or something similar) available at home. It is also important for the person to carry identification stating that he is diabetic, and enough money to summon help, or for taxi fare, in case he must get to a hospital.

If a person is found staggering, unable to speak clearly, or is already unconscious, many people assume he or she is drunk, and not in need of immediate help. This can be a potentially dangerous assumption because the staggering, confused or unconscious person may be in a severe insulin reaction or entering a diabetic coma. It is easy to know if a person is drunk—you can smell the alcohol. If you do not smell alcohol, but, rather, if the person's breath smells sweet, or "fruity," and if the person's skin is flushed, hot and dry, think of a diabetic

coma. If the person's skin is pale, cold, but damp with perspiration, think of an insulin reaction. In either case, the person needs immediate medical attention.

IF YOU KNOW A DIABETIC

A person who works, lives, or goes to school with a juvenile diabetic should be aware of the first signs of an insulin reaction. Sometimes, it can be a sudden reaction. Sometimes, it comes on more slowly. It can be signaled by sweating, weakness, dizziness, headache, heart pounding, a fast and weak pulse, irritable behavior, mental confusion. The important thing is to get the person to eat something containing a lot of sugar, such as candy, or a *non*-diet soda, like Coca-Cola, quickly.

DIABETES CAUSES COMPLICATIONS

We do not know what causes diabetes—or how to cure it. We do know that it is not a simple disease. That is, it is not only a metabolic disorder that is corrected by taking insulin, with no further problems.

As time goes on, diabetes causes complications in organs and systems throughout the body. It affects the blood vessels, especially the arteries, and causes circulatory problems. As the diabetic gets older, cuts and sores frequently do not heal properly because of the poor circulation. Diabetes is the leading cause among new cases of blindness in the United States today. It also greatly increases the risk of heart attack, stroke, and kidney disorders. It shortens the life expectancy of its victims. Diabetes is, to put it simply, chronic, complicated, destructive and, eventually, in many cases, a killer disease.

But, there is increasing hope that diabetes and its problems can be helped.

WHAT THE FUTURE HOLDS

Medical science is looking for two things: (1) a way to control diabetes in a better way, and, in that way, eliminate the complications, and (2) a cure for the disease itself.

With these objectives in mind, researchers in laboratories and medical schools throughout the United States and other parts of the world are constantly exploring new areas. Many interesting studies are now going on.

The insulin that non-diabetic people produce is made in the part of the pancreas called the islets of Langerhans. The islets contain many different cells, but the beta cells are the ones that actually produce the insulin. Research scientists are working on the possibility of transplanting beta cells from a non-diabetic person or animal into a diabetic person. This might be done, some day, through a simple injection process: taking a syringe of beta cells that are healthy, and injecting them into a person whose beta cells don't produce the insulin. There are many problems yet to be solved: will the cells be rejected as "foreign" by the body? will the cells continue producing insulin in the new body? will the cells know when to stop reproducing, or will they continue to reproduce so that they become like a cancer?

There is, in addition, the idea of transplanting healthy, functioning whole pancreases from human donors. There are the same problems here that scientists face with any other transplant procedure: the body tends to reject most transplanted organs because it regards them as foreign bodies.

Some researchers are working on trying to find a way for insulin to be taken orally. It would be much more pleasant to be able to take a pill of insulin every day, instead of injecting oneself with a needle. So far, this has not worked, because the insulin is destroyed in the digestive tract before it gets a chance to start working.

Something more practical seems to be possible with the development of an artificial pancreas. An artificial pancreas is an instrument that would regulate the ratio of sugar and insulin by monitoring the blood sugar all the time. It would then feed some insulin into the body as needed, or feed some sugar into the body if that were needed. These artificial pancreases would be small enough to be placed inside the body of the diabetic. There would be "compartments" into which insulin and glucose could be put, perhaps as rarely as once a month, and stored. Then, the artificial pancreas could automatically provide the body with whichever is needed, at any moment. There are still many technical problems to be worked out with the artificial pancreas, however.

Some researchers are working on a hormone, called somatostatin, which seems to inhibit certain other hormones in people, and appears to be useful in preventing or controlling vascular problems in diabetes. There is much to be learned, but certainly, it is exciting to think of the possibility of a substance which, when taken with the insulin, could help avoid the complications of eye, kidney and heart disease.

Then, of course, there are people working to find out what causes diabetes. No one knows how it is inherited or acquired, or how to predict, in any reliable way, the chances of a child getting the disease.

IF A PERSON HAS JUVENILE DIABETES

He must take his insulin every day.

He must test his urine every day.

He must carry candy or sugar with him at all times.

He must have emergency money with him at all times.

He must be carefully checked by his doctor at regular intervals.

He must remember to carry his insulin and needles with him (in his hand, not in his suitcase, which might get lost) whenever he might be unable to get home at night, or when traveling.

He must carry food with him when traveling, in the event that he gets delayed, that the plane or train gets stuck, that the car in which he is riding gets a flat tire in the middle of some highway.

He must have identification with him, indicating that he is a diabetic, that he is on insulin (the type and amount) and listing his doctor's name and phone number.

KNOW ABOUT THESE SIGNS*

Insulin Reaction	*Diabetic Coma*
Comes on rather quickly	Comes on slowly, over a longer period of time
Pale, perspiring skin	Dry, hot skin
Dizzy	Not dizzy
Rapid pulse	No rapid pulse
Very hungry (sometimes)	Not hungry
Normal urination	Excessive urination
Normal thirst	Excessive thirst
Shallow breathing	Deep, labored breathing
Breath smells normal	Breath smells fruity
Confused, strange behavior	Drowsy, lethargic
Little or no sugar in urine	A lot of sugar in urine, probably with acetone, as well.

*Adapted from *How to Live With Diabetes*, Dr. Henry Dolger, Pyramid Books.

THE JUVENILE DIABETES FOUNDATION

The Juvenile Diabetes Foundation is a national, non-profit, voluntary agency whose prime objective is to support and fund research aimed at preventing the complications and curing the disease itself.

The organization also serves the needs of the diabetic child and young adult, and their families, by providing family counseling, as well as other programs of education and information, and strives to alert the general public to the seriousness of juvenile diabetes.

The Juvenile Diabetes Foundation
23 East 26th Street
New York, N.Y. 10010

(212) 683-5288
(212) 689-7868

What the teacher should know about the student with DIABETES

Available through JUVENILE DIABETES FOUNDATION

All teachers, school nurses, principals, lunchroom personnel, playground and hall supervisors, and bus drivers should be informed that a student has diabetes. It is important that all school personnel understand the following fundamentals

DIABETES is **not** an infectious disease. It is a life-long, hereditary condition resulting from a lack of available effective insulin in the body. Without insulin the body cannot use food properly. Treatment consists of daily injections of insulin and prescribed dietary intake.

INSULIN REACTIONS occur when the blood sugar level is too low. Insulin and Exercise lower blood sugar. Food raises blood sugar. Good control requires that these three factors be balanced

Reactions occur because of (1) too little food or a delayed meal
(2) strenuous exercise not covered by extra food.
(3) nervous or emotional tension
(4) too much insulin.

***Symptoms:** Watch for any of these sudden changes:

Pallor • Excessive Perspiration • Hunger • Headache • Dizziness
Blurring of Vision • Irritability • Inappropriate Responses • Crying
Confusion • Inability to Concentrate • Inattentiveness • Drowsiness
Lack of Coordination • Trembling • Abdominal Pain • Nausea

If the reaction is not treated, Unconsciousness or Convulsions ensue
Symptoms may vary from time to time

***Treatment:** **At first sign of any of the above symptoms a diabetic must be treated at once.**

1) GIVE some form of SUGAR IMMEDIATELY. (This will rapidly increase the amount of sugar in the blood.) This can be: 2 large sugar cubes
Fruit Juice (approximately ½ cup)
Pop (½ cup—not diet pop)
Candy (equivalent to 6-7 lifesavers)
The child may need coaxing to eat.
2) He should improve within 10 minutes. Then give him additional food and have him resume normal school activities.
3) If the child does not improve, call parents or physician.

PSYCHOLOGICAL ADJUSTMENT: Children with diabetes do not want to be singled out as "different." With few exceptions, and with precautions taken to avoid insulin reactions, they can and should participate in all class activities. It is important for the adults in the child's environment to give him support and understanding without being overly-protective. Do not be unduly concerned but be aware of his needs. The child usually knows a great deal about his own condition.

*Sypmtoms and most effective treatments vary according to the individual. It is prudent to have a conference with parents to obtain specific information about the individual child.

See Form on reverse side →

Diet: Diabetics need to follow a prescribed diet. Concentrated sweets such as candy, frostings, and syrups are omitted from the child's diet. The child is taught to select his own foods from the school lunch program or he will bring his own lunch. The lunchroom manager should be aware of the child's dietary needs. Young children may have to be observed to be sure they have eaten properly. Many diabetic children must have a mid-morning and mid-afternoon snack to maintain the food/insulin balance. It is important for them to eat every snack and meal on time. Delay may result in insulin reaction.

Urine Testing: One of the primary objectives in controlling diabetes is to maintain the amount of sugar in the blood within reasonable limits. Testing the urine for sugar several times each day serves as an effective guide for proper management. Tests should be made before each meal. It is advisable to allow time before lunch for this and make appropriate arrangements for privacy.

General Advice:

Watch his class performance before lunch

Don't assign him to last lunch period.

Don't assign physical exercise just before lunch

If he needs a mid-morning snack, help him be as inconspicuous as possible

Teachers and nurses should keep sugar readily available.

Diabetic children should carry their own sugar and may often recognize and treat their own reactions.

Many diabetic children take extra sugar or nourishment before planned strenuous exercise. Help them avoid reactions.

Diabetic coma, a result of uncontrolled diabetes, does NOT come on suddenly and generally is not a concern of the teacher.

This material may be reprinted for the child's cumulative school record. For additional information or copies of this card contact:

Information to be obtained from parents when conference is held at beginning of school term:

_____ _____
Child's Name Date

_____ _____
Parents' Name Phone

_____ _____
Alternate person to call in emergency Phone

_____ _____ _____
Physician's Name Address Phone

Signs and symptoms the child usually exhibits preceding insulin reaction _____

_____

_____

Time of day reaction most likely to occur _____

Most effective treatment (sweets most readily accepted) _____

_____

Kind of morning or afternoon snack _____

_____

Suggested "treats" for in-school parties _____

For further information, please contact:

National Office:
JUVENILE DIABETES FOUNDATION
23 East 26th Street
New York City, New York 10010
Telephone: 212-689-7868

Juvenile Diabetes Foundation is a non-profit organization dedicated to the prevention and cure of diabetes through research.

What the counselor should know about the camper with DIABETES

Available through JUVENILE DIABETES FOUNDATION

All counselors, nurses, lunchroom personnel, and bus drivers should be informed that a camper has diabetes. It is important that all camp personnel understand the following fundamentals.

DIABETES is **not** an infectious disease. It is a life-long, hereditary condition resulting from a lack of available effective insulin in the body. Without insulin the body cannot use food properly. Treatment consists of daily injections of insulin and prescribed dietary intake.

INSULIN REACTIONS occur when the blood sugar level is too low. Insulin and Exercise lower blood sugar. Food raises blood sugar. Good control requires that these three factors be balanced.

Reactions occur because of (1) too little food or a delayed meal.
(2) strenuous exercise not covered by extra food.
(3) nervous or emotional tension.
(4) too much insulin.

***Symptoms:** Watch for any of these sudden changes:

Pallor · Excessive Perspiration · Hunger · Headache · Dizziness
Blurring of Vision · Irritability · Inappropriate Responses · Crying
Confusion · Inability to Concentrate · Inattentiveness · Drowsiness
Lack of Coordination · Trembling · Abdominal Pain · Nausea

If the reaction is not treated, Unconsciousness or Convulsions ensue.
Symptoms may vary from time to time.

***Treatment:** **At first sign of any of the above symptoms a diabetic must be treated at once.**

1) GIVE some form of SUGAR IMMEDIATELY. (This will rapidly increase the amount of sugar in the blood.) This can be: 2 large sugar cubes
Fruit Juice (approximately ½ cup)
Pop (½ cup—not diet pop)
Candy (equivalent to 6-7 lifesavers)
The child may need coaxing to eat.
2) He should improve within 10 minutes. Then give him additional food and have him resume normal school activities.
3) If the child does not improve, call physician or local hospital.

PSYCHOLOGICAL ADJUSTMENT: Children with diabetes do not want to be singled out as "different." With few exceptions, and with precautions taken to avoid insulin reactions, they can and should participate in all camp activities. It is important for the adults in the child's environment to give him support and understanding without being overly-protective. Do not be unduly concerned, but be aware of his needs. The child usually knows a great deal about his own condition.

* Symptoms and most effective treatments vary according to the individual. It is prudent to have a conference with parents to obtain specific information about the individual child.

See Form on reverse side→

Diet: Diabetics need to follow a prescribed diet. Concentrated sweets such as candy, frostings, and syrups are omitted from the child's diet. The kitchen personnel should be aware of the child's dietary needs. Young children may have to be observed to be sure they have eaten properly. Many diabetic children must have a mid-morning and mid-afternoon snack to maintain the food/insulin balance. It is important for them to eat every snack and meal on time. Delay may result in insulin reaction.

Urine Testing: One of the primary objectives in controlling diabetes is to maintain the amount of sugar in the blood within reasonable limits. Testing the urine for sugar several times each day serves as an effective guide for proper management. Tests should be made before each meal or at least twice a day. It is advisable to allow time before lunch for this and make appropriate arrangements for privacy.

General Advice:

Watch his performance before lunch.

Don't assign heavy physical exercise just before lunch.

If he needs a mid-morning snack, help him be as inconspicuous as possible.

Counselors and nurses should keep sugar readily available.

Diabetic children should carry their own sugar and may often recognize and treat their own reactions.

Many diabetic children take extra sugar or nourishment before planned strenuous exercise. Help them avoid reactions—especially on long hikes.

Diabetic coma, a result of uncontrolled diabetes, does NOT come on suddenly, but counselor should be aware of camper's daily condition.

Orange juice (in a thermos) or sugar should be available for night time needs in camper's bunk or tent.

Before camp, diabetic's physician should be consulted on the possible lowering of insulin for a busy camp schedule, as compared to the less active school day schedule.

Glucagon should be available in camp nurse's office for an emergency.

For further information, please contact:

JUVENILE DIABETES FOUNDATION
23 East 26th Street
New York, New York 10010
(212) 683-5288

Juvenile Diabetes Foundation is a non-profit organization dedicated to the prevention and cure of diabetes through research.

Give of yourself—Give of your time—Give to JUVENILE DIABETES FOUNDATION



diabetic cooking is good stuff!

JUVENILE DIABETES FOUNDATION
COOKBOOK

Available from the JUVENILE DIABETES FOUNDATION

APPENDIX 6

INTERNATIONAL DIABETES FEDERATION

I.D.F. MEMBER ASSOCIATIONS

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Addresses
Chief Officers
Membership
Publications
Affiliated and Other Societies

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Replies received up to 31st March, 1974

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Towards the end of 1973, a questionnaire was sent to every Full and Associate Member Association, seeking up-to-date information about each Society. The replies received so far are given below, in order of foundation. Details of other Associations will be published as they are received.

1. BRITISH DIABETIC ASSOCIATION

3-6 Alfred Place, LONDON, WC1E 7EE, England.
Formed: 1934.
Membership:

Lay Members	40,024
Medical/Scientific	486
Paramedical	298
	40,808

Secretary-General: Mr. Robin L. Allard.
Publication: *Balance;* every two months.

2. AMERICAN DIABETES ASSOCIATION Inc.

1 West 48th Street, NEW YORK, New York 10020, U.S.A.
Formed: 1940.
Membership:

Lay Members	889
Medical/Scientific	2,989
Paramedical	108
	3,986

Executive Director: Mr. Ernest M. Frost.
Publications: *Diabetes;* monthly.
Forecast; every two months.
Affiliate Associations:

ALABAMA DIABETES ASSOCIATION,
2211 DeRussey Road, S.E., Huntsville, Alabama 35801.

ALASKA DIABETES ASSOCIATION,
P.O. Box 4495, Anchorage, Alaska 99503.

NORTHERN CALIFORNIA DIABETES ASSOCIATION,
255 Hugo Street, San Francisco, California 94122.

DIABETES ASSOCIATION OF SOUTHERN CALIFORNIA,
4849 Van Nuys Boulevard, Sherman Oaks, California 91403.

COLORADO DIABETES ASSOCIATION,
1375 Delaware Street, Denver, Colorado, 80204.

CONNECTICUT DIABETES ASSOCIATION,
47 College Street, Room 230, New Haven, Connecticut 06510.

DELAWARE DIABETES ASSOCIATION,
1925 Lovering Avenue, Wilmington, Delaware 19806.

DIABETES ASSOCIATION OF THE WASHINGTON, D.C., METROPOLITAN AREA,
P.O. Box 4384, Takoma Park Branch, Washington D.C. 20012.

FLORIDA DIABETES ASSOCIATION,
P.O. Box 2003, Jacksonville, Florida 30203.

GEORGIA DIABETES ASSOCIATION,
762 Cypress Street, N.E., Atlanta, Georgia 30308.

DIABETES ASSOCIATION OF GREATER CHICAGO,
620 N. Michigan Avenue, Chicago, Illinois 60611.

DOWNSTATE ILLINOIS DIABETES ASSOCIATION,
100 West Miller Street, Springfield, Illinois 62702.

IDAHO DIABETES ASSOCIATION,
2400 Bella Street, Boise, Idaho 83702.

INDIANA DIABETES ASSOCIATION,
810 Hume Mansur Building, Indianapolis, Indiana 46204.

KENTUCKY DIABETES ASSOCIATION,
226 East Chestnut, Louisville, Kentucky 40202.

DIABETES ASSOCIATION OF LOUISIANA,
1121 Louisiana Avenue, Shreveport, Louisiana 71101.

MARYLAND DIABETES ASSOCIATION,
407 Reisterstown Road, Pikesville, Maryland 21208.

NEW ENGLAND DIABETES ASSOCIATION,
1223 Beacon Street, Room 107, Brookline, Massachusetts 02146.

MICHIGAN DIABETES ASSOCIATION,
6131 West Outer Drive, Detroit, Michigan 48235.

TWIN CITIES DIABETES ASSOCIATION,
W-414 Meadowbrook Medical Building, 6490 Excelsior Boulevard, Minneapolis, Minnesota 55426.

DIABETES ASSOCIATION OF MISSISSIPPI,
1126 Adkins Boulevard, Jackson, Mississippi 39211.

MISSOURI STATE DIABETES ASSOCIATION,
11968 Red Lion, Florissant, Missouri 63033.

MONTANA DIABETES ASSOCIATION,
P.O. Box 2088, Great Falls, Montana 59401.

NEBRASKA DIABETES ASSOCIATION,
c/o Dept. of Medicine, University of Nebraska College of Medicine, 42nd and Dewey, Omaha, Nebraska 68105.

NEVADA DIABETES ASSOCIATION,
17 Bon Rae Circle, Las Vegas, Nevada 89110.

NEW JERSEY DIABETES ASSOCIATION,
153 Roseville Avenue, Newark, New Jersey 07107.

NEW MEXICO DIABETES ASSOCIATION,
1441 Wyoming Boulevard, Albuquerque, New Mexico 87112.

BUFFALO DIABETES ASSOCIATION,
Kenmore Mercy Hospital, 2950 Elmwood Avenue, Buffalo, New York 14217.

NEW YORK DIABETES ASSOCIATION,
104 East 40th Street, New York, New York, 10016.

NIAGARA FALLS DIABETES ASSOCIATION,
457 3rd Street, Niagara Falls, New York 14301.

ROCHESTER REGIONAL DIABETES ASSOCIATION,
1351 Mount Hope Avenue, Rochester, New York 14620.

NORTH CAROLINA DIABETES ASSOCIATION,
408 North Tryon Street, Charlotte, North Carolina 28202.

NORTH DAKOTA DIABETES ASSOCIATION,
221 South Fourth Street, Grand Forks, North Dakota 58201.

DIABETES ASSOCIATION OF THE CINCINNATI AREA,
2400 Reading Road, Cincinnati, Ohio 45202.

DAYTON AREA DIABETES ASSOCIATION,
184 Salem Avenue, Dayton, Ohio 45406.

GREATER AKRON AREA DIABETES ASSOCIATION
326 Locust Street, Akron, Ohio 44302.

OKLAHOMA DIABETES ASSOCIATION,
2021 South Lewis, Tulsa, Oklahoma 74104.

DELAWARE VALLEY DIABETES ASSOCIATION,
919 Walnut Street—4th Floor, Philadelphia, Pennsylvania 19107.

LEHIGH VALLEY DIABETES ASSOCIATION,
1434 North Broad Street, Allentown, Pennsylvania 18104.

PITTSBURGH DIABETES ASSOCIATION,
200 Ross Street, Pittsburgh, Pennsylvania 15219.

READING DIABETES ASSOCIATION,
2305 Gring Drive, Whitfield, Reading, Pennsylvania 19609.

SOUTH CAROLINA DIABETES ASSOCIATION,
c/o Medical College of South Carolina, 80 Barre Street, Charleston, South Carolina 29401.

TENNESSEE DIABETES ASSOCIATION,
c/o Baptist Hospital, Room 120, West Building, 2000 Church Street, Nashville, Tennessee 37236.

DALLAS DIABETES ASSOCIATION,
4232 Herschel Street, Dallas, Texas 75219.

SOUTH TEXAS DIABETES ASSOCIATION,
P.O. Box 1638, Pasadena, Texas 77501.

VIRGINIA DIABETES ASSOCIATION,
University of Virginia Hospital, Box 145, Charlottesville, Virginia 22901.

WASHINGTON DIABETES ASSOCIATION,
1000 Seneca Street, Seattle, Washington 98101.

WEST VIRGINIA DIABETES ASSOCIATION,
1033 Forest Road, Charleston, West Virginia 25314.

WISCONSIN DIABETES ASSOCIATION,
225 East Michigan Street, Milwaukee, Wisconsin 53202.

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3. ASSOCIATION BELGE DU DIABÈTE

234 b, Avenue Churchill, B-1180 BRUSSELS, Belgium.

Formed: 1942.

Membership:		
	Lay Members	4,706
	Medical/Scientific	2,362
	Paramedical	743
		7,811

Secretary-General: Dr. Jean Pirart

Publication: *ABD;* every two months.

Other Society: BELGISCHE VERENIGING VOOR SUIKERZIEKEN,
13 Godshuisen, B-9000 GENT, Belgium.

4. ASSOCIAZIONE ITALIANA PER LA DIFESA DEGLI INTERESSI DEI DIABETICI

Via Della Scrofa 14, ROME, Italy.

Formed: 1949.

Membership:		
	Lay Members	1,096
	Medical/Scientific	16
	Paramedical	10
		1,122

Secretary: Drssa. M. V. Silvestri.

Publication: *Giornale del Diabetici;* every two months.

Other Societies: SOC. ITALIANA DI DIABETOLOGIA.
ASS. DEL DIABETE, Napoli.

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5. SOCIEDAD CUBANA DE DIABETES

Consejo Cientifico del MINSAP, 23 y N. Vedado, HABANA 4, Cuba.

Formed: 1950.

Membership: Medical/Scientific 36

President: Prof. Dr. O. Mateo de Acosta Fernandez.

Publication: none on regular basis. Number of books, of which President is the author.

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6. DEUTSCHER DIABETIKER-BUND

Marktstrasse 37, D-6750 KAISERSLAUTERN, West Germany.

Formed: 1951.

Membership: No figures given.

Executive Officer: Herr H. Burger-Busing.

Publication: *Diabetes-Journal;* monthly.

Other Society: DEUTSCHEN DIABETES-GESELLSCHAFT.

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7. SOCIEDAD ESPANOLA DE DIABETES

Gonzalo de Cordoba 20, MADRID 10, Spain.

Formed: 1952.

Membership:		
	Lay Members	1,707
	Medical/Scientific	195
		1,902

Secretary: Dr. J. L. Herrera-Pombo.

Publication: *Diabetes;* quarterly.

Other Societies: LUCHA ANTIDIABETICA DE LA CRUZ ROJA ESPANOLA.

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8. DIABETES FEDERATION OF AUSTRALIA

45 Gawler Place, ADELAIDE, South Australia 5000.

Formed: 1953.

Membership: 11,000

Secretary: Mr. R. M. W. Hall.

Publication: *Conquest;* quarterly.

Other Societies: DIABETES SOCIETY OF AUSTRALIA,
c/o Dr. H. Breidahl,
421 St. Kilda Road, St. Kilda, Victoria.

State Associations:

VICTORIAN DIABETIC ASSOCIATION,
37 Swanston Street, Melbourne.

DIABETES ASSOCIATION OF THE A.C.T.,
P.O. Box 149, Canberra City.

TASMANIAN DIABETES ASSOCIATION,
P.O. Box 6, North Hobart.

DIABETIC ASSOCIATION OF WEST AUSTRALIA,
55 Murray Street, Perth.

DIABETIC ASSOCIATION OF NEW SOUTH WALES,
250 Pitt Street, Sydney.

DIABETIC ASSOCIATION OF QUEENSLAND,
P.O. Box 372, North Quay, Brisbane.

DIABETIC ASSOCIATION OF SOUTH AUSTRALIA,
45 Gawler Place, Adelaide.

9. CANADIAN DIABETIC ASSOCIATION

1491 Yonge Street, TORONTO, Ontario, M4T 1Z5.
Formed: 1953.
Membership:

Lay Members	11,520
Medical/Scientific	140
Paramedical	—
	11,660

Executive Director: Mr. John W. Kennady.
Publication: *Newsletter;* quarterly.
National Office Bulletin (NOB Bulletin); every two months.

Divisions:

NOVA SCOTIA DIVISION,
P.O. Box 763, Sydney, Nova Scotia.

NEW BRUNSWICK DIVISION,
c/o 11 Franklyn Avenue, Moncton, New Brunswick.

ONTARIO DIVISION,
c/o 873 Avenue Road, Apt. 5, Toronto, Ontario.

MANITOBA DIVISION,
Box 695, Winnipeg, Manitoba, R3C 2K3.

SASKATCHEWAN DIVISION,
c/o 3 Sussex Crescent, Regina, Saskatchewan.

ALBERTA DIVISION,
c/o 1416,21 Avenue N.W., Calgary, Alberta.

BRITISH COLUMBIA DIVISION,
2219 Kingsway, Vancouver 16, B.C.

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10. ISRAEL DIABETES ASSOCIATION

Beth Harofe, Heftman Street, 1, TEL-AVIV, Israel.
Formed: 1953.
Membership:

Lay Members	600
Medical/Scientific	56
Paramedical	5
	661

Secretary: Mr. I. Zelvianski.
Publication: *Sukeret;* quarterly.

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11. SOCIEDAD ARGENTINA DE DIABETES

Av. Sante Fe 1171, BUENOS AIRES, Argentina.
Formed: 1954.
Membership: Medical/Scientific 212
Secretary: Dr. Mario Calvagno.
Publication: *Revista de la Sociedad Argentina de Diabetes;* quarterly.
Other (lay) Societies:

LIGA ARGENTINA DE PROTECCION AL DIABETICO (LAPDI).
Tucuman 1584, Buenos Aires.
Publication: *Gaceta del Diabetico;* three times a year.

ASOCIACION DEFENSA DEL DIABETICO, "Dr. Julio Cesar Brigante".
Lavalle 1282, Buenos Aires.

ASOCIACION ARGENTINA EN PRO DEL NINO DIABETICO, "Prof. Pedro Escudero" (NIDIA).
Moreno 1959, Buenos Aires.
Publication: *El Pregon de Nidia.*

ASOCIACION BAHIENSE DE AYUDA AL DIABETICO (ABADI),
Lamadrid 110, Bahia Blanca. Prov. de Buenos Aires.

ASOCIACION SANJUANINA DE AYUDA AL DIABETICO (ASAD),
Mendoza 1595, Villa Krause, San Juan.

ASOCIACION DE AYUDA AL DIABETICO DE TUCUMAN (ADIA),
Buenos Aires 684, San Miguel de Tucuman.

ASOCIACION DE AYUDA AL DIABETICO DEL NORDESTE,
Saenz Pena 159, Resistencia, Chaco.

ASOCIACION DE DIABETICOS DE SALTA (ADIASA),
Monteagudo 36, Salta.

ASOCIACION DE DIABETICOS DE SANTA FE,
Hipolito Irigoyen 3577, Santa Fe.

ASOCIACION AYUDA Y PROTECCION AL DIABETICO DE CORDOBA (APAD),
Sucre 246, Cordoba.

FUNDACION PARA ENFERMEDADES DE LA NUTRICION Y DIABETES DE MAR DEL PLATA (FENDIM),
Rivadavia 2337, 4º piso, of. 453/4 Mar del Plata, Prov. de Buenos Aires.

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12. DIABETIC ASSOCIATION OF INDIA

Maneckji Wadia Building, 127 Mahatma Gandhi Road, Bell Lane, Fort, BOMBAY 400 001, India.
Formed: 1955.
Membership:

Lay Members	1,656
Medical/Scientific	390
	2,046

Hon. General Secretary: Dr. N. G. Talwalkar.
Publication: *Madhumeha;* quarterly.
Other Societies: GUJARAT DIABETES ASSOCIATION, near Paldi Bus Stand, Ellis Bridge, Ahmedabad 7.
RAJKOT DIABETIC ASSOCIATION, Kotak Girl's Building, near Moti Tanki, Rajkot.

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13. SOKERITAUTILIITTO r.y.-SOCKERSJUKSFORBUNDET r.f.

Kauppakatu 7 A 3, 33200 TAMPERE 20, Finland.
Formed: 1955.
Membership: 9,855
Executive Officer: Mr. Seppo Marttinen.
Publication: *Diabetes;* monthly.
Other Society: ENDOKRINOLOGINEN YHDISTYS, c/o Dr. R. Pelkonen, Helenankuja 1 E, 02700 KAUNIAINEN, Finland.

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14. TURK DIABETIKLER CEMIYETI

Harbiye, Meyva Sokak No. 10, ISTANBUL, Turkey.
Formed: 1955.
Membership:

Lay Members	2,500
Medical/Scientific	45
Paramedical	43
	2,588

Secretary: Prof. Dr. N. Bagriacik.
Publications: *Diabet;* quarterly for medical persons.
Diabet; quarterly for lay members.

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15. DIABETIC ASSOCIATION OF BANGLADESH

(formerly DIABETIC ASSOCIATION OF PAKISTAN).
Segun Bagicha, Ramna, DACCA 2, Bangladesh.
Formed: 1956.
Membership:

Lay Members	683
Medical/Scientific	80
Paramedical	42
	805

Secretary: Mr. A. G. Hazari.
Publication: *Journal, Diabetic Association of Bangladesh;* quarterly.

16. DIABETIC ASSOCIATION OF THAILAND

Mongkutklao Hospital, Payatai, BANGKOK, Thailand.
Formed: 1956.

Membership:		
	Lay Members	1,416
	Medical/Scientific	32
		1,448

Secretary: Dr. Anek Yuvachitti.
Publication: *Diabetic Journal of Diabetic Association of Thailand;* every two months.

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17. SCHWEIZERISCHE DIABETES-GESELLSCHAFT

Stauffacherquai 36, CH-8004 ZURICH, Switzerland.
Formed: 1957.

Membership:		
	Lay Members	5,996
	Medical/Scientific	87
		6,083

Secretary: Ruth Jetzer.
Publication: *Dia-Journal.* First issue April, 1974.
Affiliate Associations:

AARGAUER DIABETES GESELLSCHAFT,
Im Tannengut 7, 5000 Aarua.

BASLER DIABETES-GESELLSCHAFT,
Mittlere Strasse 35, 4056 Basel.

BERNER DIABETES-GESELLSCHAFT,
Waldeggstr. 71, 3097 Liebefeld.

LUZERNER DIABETES GESELLSCHAFT,
Matthofring 9, 6000 Luzern.

ZURCHER DIABETES-GESELLSCHAFT,
Stauffacherquai 36, 8004 Zurich.

LIGUE D'ENTRAIDE AUX DIABETIQUES,
Place Claparede 4, 1206 Geneva.

ASSOCIATION VAUDOISE DU DIABETE,
Case Postale 583, 1002 Lausanne.

ASSOCIATION NEUCHATELOISE DU DIABETE,
Case Postale 709, 2300 Le Chaux-de-Fonds.

ASSOCIATION VALAISANNE DU DIABETE,
Case Postale 540, 1950 Sion.

OSTSCHWEIZERISCHE DIABETES-GESELLSCHAFT,
9000 St. Gallen.

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18. JAPAN DIABETIC SOCIETY

c/o Toyo-Bunko 28-21, Honkomagome 2-chome, Bunkyo-ku, TOKYO 113. Japan.
Formed: 1958.

Membership:		
	Medical/Scientific	2,400

Chairman: Dr. Nobusada Kuzuya.
Publications: *Tonyobyo;* every two months (Medical).
Sakae; every two months (Lay).
Other Society: JAPAN DIABETIC LAY SOCIETY,
Jinmaru Building, 27-4, Hamamatsu-cho 1-chome,
Minato-ku, Tokyo 105, Japan.

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19. SOCIETY FOR ENDOCRINOLOGY, METABOLISM AND DIABETES FOR SOUTHERN AFRICA

c/o Dr. M. Katz, Dept. of Obstetrics & Gynaecology, Medical School, Observatory, 7700 CAPE, S. Africa.
Formed: 1959.

Membership:		
	Medical, Scientific	58

Secretary: Dr. M. Katz.
Publication: none.
Other Society: SOUTH AFRICA DIABETIC ASSOCIATION,
P.O. Box 10998,
Johannesburg 2000, S. Africa.

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20. SOCIEDAD MEXICANA DU NUTRICION Y ENDOCRINOLOGIA, A.C.

Av. San Fernando y Viaducto Tlalpan, MEXICO 22, D.F., Mexico.
Formed: 1962.

Membership:		
	Medical/Scientific	200

Secretary: Dr. Manual Nava.
Publication: none.
Other Society: ASOCIACION MEXICANA DE DIABETICOS, A.C.,
Apartado Postal 5-076.
Mexico 5, D.F., Mexico.

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21. ASOCIACION VENEZOLANA DE DIABETES

Urbanizacion Fundalara, Avenida Caracas, No. 464, BARQUISIMETO, Venezuela, S. America.
Formed: 1966.

Membership:		
	Lay Members	850
	Medical/Scientific	65
	Paramedical	83
		998

Secretary: Sra. Miguelina de Castillo Navarrete.
Publication: *Manantial;* quarterly.

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22. SEKTION DIABETES IN DER GESELLSCHAFT FUR ENDOKRINOLOGIE UND STOFFWECHSELKRANKHEITEN DER DDR.

Zentralinstitut für Diabetes, DDR-2201 KARLSBURG, East Germany.
Formed: 1968.

Membership:		
	Lay Members	8
	Medical/Scientific	139
	Paramedical	14
		161

Secretary: Dr. H. J. Hahn.
Publication: none.

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23. OSTERREICHISCHER DIABETIKERVERBAND

Gesundheitsamt der Stadt Wien, Schottenring 24, A-1010 WIEN, Austria.
Formed: 1971.

Membership:		
	Lay Members	260
	Medical/Scientific	2
	Paramedical	10
		272

Secretary: Maria Kinauer.
Publication: *Journal für Gesende Lebensfuhrung, Diabetes;* quarterly.
Other Society: OSTERREICHISCHE DIABETESGESELLSCHAFT,
c/o Dr. W. Waldhausl,
I. Med. Univ. Klinik,
Spitalgasse 23, A-1090, Wien, Austria.

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24. EGYPTIAN DIABETIC ASSOCIATION

Drug Research and Control Centre, P.O. Box 29, CAIRO, Egypt.
Formed: 1971.

Membership:		
	Lay Members	40
	Medical/Scientific	40
	Paramedical	5
		85

Secretary: Prof. Essam El Din Galal.
Publication: none.
Other Society: ASSOCIATION FOR DIABETIC WELFARE,
Alexandria.

I.D.F. MEMBER ASSOCIATIONS

(continued from April 1974 issue)

1. SVENSKA DIABETESFORBUNDET
Box 6609, S-113 84 STOCKHOLM, Sweden.
Formed: 1943.
Membership:

Lay Members	19,342
Medical/Scientific	150
Paramedical	300
	19,792

Executive Director: Mr. Ingmar Nygren-Bonnier.
Publication: *Diabetes;* every two months.
Other Society: SCANDINAVIAN SOCIETY FOR THE STUDY OF DIABETES, c/o Dr. J. Ostman, Huddinge, Sjukhus, Stockholm.

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2. DIABETES VERENINGEN NEDERLAND
Duinweg 35, BOSCH EN DUIN 2660, The Netherlands.
Formed: 1945.
Membership: Lay Members 27,616
Executive Secretary: Mr. J. Rotte.
Publication: *Diabc;* monthly, except July.

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3. ZAVEZ DRUSTAVADIJABETICARA HRVATSKE
Sinkoviceva Ulica br. 8, ZAGREB, Yugoslavia.
Formed: 1954.
Membership: No figures given.
Executive Officer: Mr. Miladjen Duro.
Publication: *Dijabeticar;* quarterly.

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4. PHILIPPINE DIABETES ASSOCIATION
Sto. Tomas University, Suite 216 Espana, MANILA, Philippines.
Formed: 1958.
Membership: Medical/Scientific 30
Secretary: Dr. Luis Mayo Lao, M.D.
Publication: None.

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5. DIABETIC ASSOCIATION OF NEW ZEALAND
P.O. Box 3656, WELLINGTON, New Zealand.
Formed: 1962.
Membership:

Lay Members	1,407
Medical/Scientific	8
	1,415

Secretary: Mr. G. F. Vincent.
Publication: *Diabetic Review;* quarterly.

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6. IRISH DIABETIC ASSOCIATION
Killyneety House, 56 St. Lawrence Road, Clontarf, DUBLIN 3, Ireland.
Formed: 1967.
Membership: No breakdown given: 848
Hon. Secretary: Mrs. P. Carroll.
Publication: None, but *Balance* (publication of British Diabetic Association) issued to all Irish members.

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7. PATRONATO CONTRA LA DIABETES INC., INSTITUTO NACIONAL DE DIABETES
Juan Pablo Pina 20, Esq. Barahona, P.O. Box 1600, SANTO DOMINGO, Dominican Republic.
Formed: 1967.
Membership:

Lay Members	10
Medical/Scientific	90
Paramedical	4
	104

President: Dr. J. A. Hazoury Bahles.
Publication: None.

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8. KOREAN DIABETES ASSOCIATION
Department of Internal Medicine, Yonsei University College of Medicine, SEOUL, Korea.
Formed: 1968.
Membership: Medical/Scientific 80
Secretary: Dr. Kap Bum Huh, M.D.
Publication: *Journal of the Korean Diabetes Association;* annually.

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9. HUNGARIAN DIABETES ASSOCIATION
Koranyi Sandor utca 2/a, H-1083 BUDAPEST VIII, Hungary.
Formed: 1970.
Membership: Medical/Scientific 120
Secretary: Dr. G. Tamas, Jnr.
Publication: None.

DIABETIC ASSOCIATIONS NOT YET MEMBERS OF THE IDF

1. DIABETIC SOCIETY OF SINGAPORE
27 C, North Canal Road, SINGAPORE.
Formed: 1971.
Membership:

Lay Members	132
Medical/Scientific	23
Paramedical	11
	166

President: Dr. Tan Bock Yam.
Publication: *Discipline;* three times a year.

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2. FIJI DIABETIC ASSOCIATION
P.O. Box 775, SUVA, Fiji Islands.
Formed: 1971.
Membership:

Lay Members	36
Medical/Scientific	3
	39

Secretary: Mrs. Valerie J. Christer.
Publication: None.

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3. KENYA DIABETICS ASSOCIATION
P.O. Box 21491, NAIROBI, Kenya, E. Africa.
Formed: 1971.
Membership: No figures given.
Hon. Secretary: Mrs. E. R. Long.
Publication: None.

APPENDIX 7

GRADY HOSPITAL DIABETES UNIT

UNIVERSITY OF CALIFORNIA

ASSESSMENT OF PROGRAM EFFECTIVENESS AT GRADY MEMORIAL HOSPITAL

John K. Davidson, M.D., Ph.D., Maria Alogna, B.S.N., Mary Goldsmith, B.S., R.D., and Tevora Riley, R.N.

Department of Medicine, Emory University School of Medicine, and Medical Service, Grady Memorial Hospital, Atlanta, Georgia

The Setting in Which the Grady Memorial Hospital Diabetes Unit Developed:

Socioeconomically deprived patients who have diabetes mellitus often seek medical care only when life is threatened by acute or chronic complications, and many hospitals that provide care for such patients lack both the trained personnel and facilities that are essential for adequate patient education, continuous long-term metabolic control, and early detection.[1]

Grady Memorial Hospital, the primary teaching hospital of the Emory University School of Medicine, functions under the Fulton County-DeKalb County Hospital Authority, and serves about 350,000 medically indigent patients in metropolitan Atlanta (population about 1.7 million). The hospital provides care for about 8,000 known diabetics (82% black, 18% white) and about 5,000 presently undiagnosed diabetics. More than 99% speak English, but 75% have less than a ninth grade education, and many are unable to read or write. Experience with these patients during the last six years has indicated that isolated lectures and other educational activities which are not coordinated with optimal health care delivery are of little or no value. On the other hand, the same experience has indicated that educational activities which are carefully coordinated with access to continuing quality medical care provided by knowledgable personnel in adequate facilities are of great value in favorably re-orienting the thoughts and actions of most (but not all) such individuals.

In the last thirty years, technological advances and specialization and subspecialization in medicine have become widespread and costs have skyrocketed.[2] During the same period, the public has demanded access to more and better health care while the number of primary care physicians available to provide such care has declined. This has created a serious dilemma for teaching hospitals which have traditionally emphasized the importance of episodic care for acutely and severely ill inpatients, usually under the supervision of specialists or subspecialists. Training programs which have emphasized the importance of inpatient care and teaching have accounted for 90% of hospital costs, and this has of necessity limited the amount of money available to provide quality care and teaching in outpatient clinics that deal with more common but less serious acute and chronic illnesses and with early disease detection and

prevention. It has recently been shown that early detection and optimal treatment of diabetes in ambulatory care clinics can prevent many expensive hospital admissions.[3] Because such a strategy is impressively cost-effective, there is good reason to anticipate that ambulatory care facilities in the future will have more financial support from the public and the government. As health planning and resources development proceeds, the total needs of the population will be strongly emphasized, individual patient care will become more comprehensive and continuous, and physicians and other allied health personnel in training will have more longitudinal contact with chronic diseases such as diabetes.

The frequency and serious nature of the acute and chronic complications presented by its diabetic population, the lack of equipment and of facilities, and an insufficient number of personnel to deal with these problems at Grady prior to 1970 made it inevitable that the approach to the disease would be crisis-oriented.[1] Each year for several years pre-1970 over 500 cases of severe diabetic ketoacidosis (CO_2 less than 10 mEq/L) were treated. Two-thirds of these patients were treated in the Medical Emergency Clinic or the Diabetes Clinic, neither of which was optimally equipped to deal with the problem. It was not uncommon for four or five cases of diabetic ketoacidosis to be under treatment in the Medical Emergency Clinic at the same time; on these occasions the clinic resembled a treatment center that was dealing with patients who were victims of a major disaster. One-third of the patients in ketoacidosis, the most seriously ill, were admitted to and treated on inpatient Medical Wards. Of the approximately 150 lower extremity amputations that were being done each year on diabetic patients, it was estimated that one-half could have been prevented by optimal preventive foot care. Ketoacidosis and amputations alone in 1969 cost the hospital over 1.5 million dollars. To complete the picture of the pre-1970 crisis-oriented approach, the consequences of poor metabolic control, infection, and other acute and chronic complications would of necessity be added. Without a detailed analysis of these additional problems, it was obvious that the time had come to abandon the crisis-oriented approach and to replace it with an approach which emphasized indepth patient and family education, optimal continuous followup, prevention of acute complications, prevention of at least some of the more drastic consequences of the chronic complications, and early detection.

More trained personnel, additional facilities, and money were needed to change the crisis-oriented approach. Personnel utilized included physicians, nurses, dieticians, podiatrists, pharmacists, and other allied health professionals. It was clear from the beginning that the physicians who were available had neither the time, nor indeed the all-encompassing talent, to make every change that was needed. Yet the physician remains the leader of the team of professionals that gradually developed; this leadership in turn is predicated on his (or her) knowledge and ability to educate and inspire highly competent allied health professionals and the patients themselves. The team approach has

been responsible for the introduction of new and better teaching methods for medical students, interns, residents, and fellows (about 650) who are trained at Grady each year. At the present time, it is estimated that about half of the medical students and housestaff participate in some of the professional education activities that are being carried out in the Diabetes Unit.

The present Grady Memorial Hospital Diabetes Unit evolved over the last five years and its evolution toward an optimal model is continuing. Before describing the present model and evaluating its effectiveness, it is desirable to outline the chronology of its development (Table I), and to enumerate the problems that were encountered along the way and to note how they were dealt with or solved (Table II).

Chronology of the Development of the Grady Memorial Hospital Diabetes Unit:

Although there has been overlap in time, the growth of the Diabetes Unit can be conveniently divided into four periods: (1) 21 months (September 1968-June 1970) during which the initial problems were identified, some financial support obtained, and a basic strategy developed; (2) 24 months (July 1970-June 1972) during which staff and facilities were expanded, some equipment acquired, and patient and professional teaching activities increased; (3) 33 months (July 1972-March 1975) during which staff was again expanded, more equipment acquired, patient and professional teaching activities again increased, therapeutic strategy significantly revised, ongoing audits of major acute and chronic complications initiated, and collaboration with the Surgical Service re lower extremity lesions expanded; (4) adequate facilities were occupied in March 1975 (Fig. 1-A & Fig. 1-B), and it is anticipated that clinical care activities (including screening), and teaching and research activities will continue to expand until they reach an optimal level within the next few years. See Table I.

Problems That Have Been Encountered and How They Have Been Dealt With or Solved:

Table II outlines the problems that have been encountered, the initial and followup plans for dealing with or solving them, and the current status of personnel, equipment, facilities, training, and research, and sources of financial support.

Many changes have in turn had unanticipated favorable effects. For example: (1) the decision to abandon the use of sulfonylureas and phenformin led directly to the rediscovery of the effectiveness of caloric restriction and weight reduction in the obese diabetic, and this in turn led to a decrease in the use of insulin in the obese segment

of the diabetic population; (2) the use of sulfated insulin to treat immunologic insulin resistance helped decrease the incidence of severe diabetic ketoacidosis and severe hypoglycemia; and (3) expanded professional education activities improved the quality of patient care delivered by better informed professionals and provided continuing financial support for more adequate training facilities which otherwise would have been unavailable.

Relationship and Staffing of the Components and Plans for Future Activities of the Diabetes Unit:

The Diabetes Unit program embraces eight components (Fig. 4). Facilities housing the Diabetes Detection and Control Center (DDCC), the Diabetes Clinic (DC), and the Podiatry Clinic are shown in Fig. 1-A, and those housing the Diabetes Professional Teaching and Diabetes Research Sections are shown in Fig. 1-B. The DDCC, DC, and Podiatry Clinic provide on-going comprehensive ambulatory care. Inpatient care for acute and chronic complications is provided on the Observation Ward and on Medicine and Surgery Wards. Consultation with and cross-referral to other services are provided as indicated in Fig. 4.

1. Diabetes Detection and Control Center: Each patient spends a full day here during which a complete data base is collected and a typed problem oriented medical record is constructed. The patient, and a family member if available, are intensively educated. The diagnostic and treatment program is appropriately updated. Since January 11, 1971, a complete data base has been collected on 4,000 of the 8,000 known diabetics, and it is estimated that one will have been collected on all known diabetics and on many of the approximately 5,000 presently undiagnosed diabetics by the end of 1977. Thereafter, it is estimated that about 500 new diabetics will be detected annually, and a complete data base will be collected on each one. Patients who have had a complete data base collected will have annual followup evaluations. At the present time, 12 patients are scheduled for complete data base collection each day (60 per week). The DDCC is staffed by 2 MD-RN-RD teams (with a third team to be added), 1 podiatrist (with a second to be added), and supporting laboratory technicians, aides, secretaries, and clerks.

2. Diabetes Clinic: After a complete data base is collected in the DDCC, comprehensive continuous followup care is provided in this clinic by diabetes nurse clinicians working as part of a team which includes dieticians, senior resident-fellows in diabetes-endocrinology, and faculty diabetologists. Each diabetes nurse clinician is responsible for a panel of about 1200 patients. She follows the treatment strategy which was formulated in the DDCC, and with the passage of time updates therapy in conformity with overall therapeutic strategy as outlined in the Diabetes Policy and Procedure Manual. The clinic is staffed by

5 RNs, 2 RDs, 2 resident fellows, and 1 faculty diabetologist. Fifty patients are scheduled for each of 10 clinics every week (500 patient vists per week).

3. Podiatry Clinic: This clinic serves all patients who have diabetes. Intensive preventive foot care education, collection of Harris mat footprints and plantar thermister readings, and prescribing of protective corrective shoes if needed is routine. Patients with neuropathy, vascular insufficiency, and infections are identified and appropriately treated. Those with foot ulcers are carefully followed until the lesions have healed. There is close continuing collaboration between the Vascular and Orthopedic Surgery Services and the Podiatry Clinic re serious foot lesions, the ongoing amputation audit, and on weekly amputation rounds. The number of amputations decreased by 24% from 1973 to 1974 (208 to 158, 108 of whom were known to have diabetes). The clinic is staffed by one full-time podiatrist (with a second to be added) and a podiatrist's aide. Each DDCC patient has a complete podiatry data base collected. Five followup podiatry clinics are scheduled each week.

4. Diabetes Professional Teaching: Professional education activities were started with a two day regional seminar (100 MDs and 200 allied health professionals attending from 13 southern states) on Problem Solving in the Diagnosis and Treatment of Diabetes Mellitus and Its Complications on Oct. 30-31, 1970. This seminar was recorded on video tape for future use. Teaching activities were supported by a Georgia Regional Medical Program grant from Sept. 1971 to June 1973, and by a Georgia Department of Human Resources grant from July 1973 to the present. The Diabetes Unit in cooperation with the Georgia Diabetes Association presented the Sixth Allied Health Postgraduate Course of the American Diabetes Association on April 22-24, 1974. A syllabus[9] was published, and the proceedings were recorded on video and audio tape for future use. A Policy and Procedure Manual, disease process standards, and educational algorithms have been printed and are in routine use. Diabetes Guidebook: Diet Section[4] is used to teach professionals the mechanics of successful diet therapy. Adequate equipment (video tape players and monitors, audio tape players, slide and movie projectors, etc.) and supplies (over 100 video tapes, over 100 audio tapes, slides, films, and several hundred books and journals) have been purchased and are being used to teach physicians, allied health professionals, and members of the house staff and medical students. The course Modern Methods in the Diagnosis and Treatment of Diabetes for physicians is taught in six 10-day sessions per year and for allied health professionals in twenty-six 5-day sessions per year. In the last three years, 53 MDs and 201 allied health professionals (61% RNs, 34% RDs) from throughout Georgia and other states, have completed the course. It is taught by an MD-RN-RD team which has secretarial support. Diabetes Guidebook: General Section, an illustrated manual containing

instructions for patients and professionals on all aspects of the nature and treatment of diabetes mellitus other than diet therapy, is now being prepared for publication. It is anticipated that professional teaching activities will continue to expand during the next few years.

5. Diabetes Research: Research activities have been directed primarily at improving the quality of patient care. An FDA Investigational New Drug number was obtained in 1968 for sulfated beef insulin, and its effectiveness in the treatment of immunologic insulin resistance has been investigated since that time. Ninety-seven percent of the patients treated have had a good therapeutic response. From 1969-1972 this research was supported by an NIH grant. Equipment and supplies for measuring serum insulin antibodies and serum insulin were purchased, and these assays are being done on a routine basis. A national collaborative study of the treatment of immunologic insulin resistance using sulfated pork insulin will be started in the near future. After oral agent therapy for diabetes was abandoned (1970-1971), the effectiveness of caloric restriction and weight reduction in the obese diabetic was rediscovered, and much clinical research has been directed toward this interesting phenomenon during the last four years.[5] Drug evaluation studies on two new sulfonylurea agents (glyburide and glipizide) have been carried out during the last four years. Screening for diabetes using random urine glucose levels as measured by the glucose oxidase oxygen rate method was found to be very effective,[6] and this study is being expanded. It is anticipated that additional studies will be undertaken in the future as financial support becomes available.

6. Observation Ward: All patients with a plasma glucose 500 mg/dl and/or moderate-large urine acetone are routinely admitted for regulation, evaluation, and education or reeducation. Senior resident-fellows in diabetes-endocrinology carry out ongoing audits of all cases of severe diabetic ketoacidosis ($CO_2 \leq 10$ mEq/L) and hyperosmolar coma (mOsm $\geq$ 350 mOsm/L) and hypoglycemia (plasma glucose $\leq$ 50 mg/dl). Diabetes grand rounds are made once weekly by a faculty diabetologist, and daily rounds are made by the resident fellows. Faculty, residents, dietician, and teaching nurse instruct house staff and students as well as patients on this ward. These individuals work closely with staff nurses, all of whom have completed the course in Modern Methods in the Diagnosis and Treatment of Diabetes. Nurses measure stat plasma glucoses using an oxygen rate method glucose analyzer. After discharge, patients are followed up in the Diabetes Clinic.

7. Inpatient Diabetes Teaching Nurse (Medicine): This nurse is assigned to the Medicine Wards where she works with staff RNs, house staff, and students. She supervises and assists in patient teaching, maintains a continuing audit of all diabetics admitted to the Medical Service, and in the future will screen all inpatients for diabetes using the random urine glucose oxygen rate method.

In 1974, 1127 patients with diabetes mellitus were admitted to the medical service. This was 15.5% of the 7280 admissions to the Medical Service for 1974. Of these, 565 (50%) were admitted because of diabetes mellitus and/or its complications: 187 with severe diabetic ketoacidosis, 322 with hyperglycemia (plasma glucose $\geq$ 500 mg/dl, and/or moderate-large urine acetone) for metabolic regulation, 45 with hypoglycemia, and 11 with a hyperglycemic hyperosmolar state (serum osmolality $\geq$ 350 mOsm/L). The remaining 562 (50%) were admitted for treatment of a problem or problems other than diabetes mellitus.

8. Inpatient Diabetes Teaching Nurse (Surgery): This nurse is assigned to the Surgery Wards where she works with staff RNs, house staff, and students. She supervises and assists in patient teaching, maintains a continuing audit of all diabetics admitted to the Surgery Service, collaborates with Vascular and Orthopedic Surgeons and a Podiatrist on the ongoing amputation audit, and in the future will screen all inpatients for diabetes using the random urine glucose oxygen rate method.

In 1974, 403 patients who had diabetes mellitus were admitted to the Surgery Service. This was 10.5% of the 3849 admissions to the Surgery Service for 1974. Of these, 174 (43%) were admitted for a diabetes-related problem: 108 for lower extremity amputation (because of gangrene or osteomyelitis), 12 for lower extremity lesions not requiring amputation, 32 for infection, and 22 for cataract extraction. The other 229 (57%) patients had problems that were not primarily diabetes-related. Of the 158 lower extremity amputations at Grady in 1974, 108 (68%) were known to have diabetes. It seems likely that some of the remaining 50 had undiagnosed diabetes, since screening of all inpatients for diabetes was not started until 1975.

At age 16, all juvenile diabetics are referred from the Pediatric Clinic to the DDCC or DC. There is cross-referral to and from the Obstetrical Clinic, and to and from the Medical and Surgical Specialty and Subspecialty Clinics as needed. Plans are being formulated for all patients entering the Medical Emergency Clinic and General Adult Clinic in the future to be screened routinely for diabetes using the random urine glucose oxygen rate method.

Assessment of the Grady Memorial Hospital Diabetes Unit Program Effectiveness:

Although statistically controlled, random, prospective studies are preferable, the cost of such studies is prohibitive when limited resources are available to deal with the needs of many thousands of patients. However, one may evaluate program effectiveness in retrospect by outcome audits, process audits, patient satisfaction, professional satisfaction, and cost effectiveness. The effectiveness of the Grady program has been evaluated in each of these five ways.

1. Outcome Audits: The most dramatic evidence of program effectiveness has been the decrease in the annual incidence of severe diabetic ketoacidosis during the last four years (1971-1974) to 30-37% of the annual incidence pre-1970. Since oral agent therapy was abandoned and less insulin has been used in the obese segment of the diabetic population, severe hypoglycemia has decreased in frequency, and sulfonylurea and phenformin reactions (including lactic acidosis) are encountered only in non-Grady treated patients who come to the Medical Emergency Clinic. Eighty percent of patients have lost weight, and plasma glucose levels are under more satisfactory control in these patients. The ongoing amputation audit suggests that optimal foot care is beginning to have an effect since amputations in 1974 (158) were 24% less than in 1973 (208). If this downward trend continues for several more years, the effectiveness of optimal foot care will have been established. Many patients have been able to resume work and earn wages when diabetes was optimally controlled. Outcome audits related to length of life, retinopathy, nephropathy, neuropathy, and arteriopathy will soon be initiated, but will require several years to determine what effect the program has had in these areas.

2. Process Audits: Ongoing audits of patterns of practice (process) examine adherence to or deviations from optimal patterns as defined by established procedures and disease process standards. Audits of severe acutely decompensated diabetes ($CO_2 \leq 10$ mEq/L), hypoglycemia, and lower extremity amputations have been carried out during the last two years, and these audits indicate that patterns of practice have improved significantly. Although it is not possible to quantitate cause and effect relationships and correlate them precisely with changes that have occured in patterns of practice, it is clear that moving away from the crisis-oriented approach toward an approach that emphasizes early detection, indepth education, and access to continuing quality care in adequate facilities has decreased the number of acute complications. It has also increased patient knowledge and has resulted in better patient compliance. Obesity is being treated more successfully, and this in turn has resulted in more optimal plasma glucose control. New techniques, including group therapy with peers who have successfully reduced body weight, are being explored with patients who have failed on diet therapy. Of the 20% who have not yet responded to aggressive caloric restriction, most have been neurotic compulsive eaters, immature juveniles, alcoholics, or psychotics. It is clear that knowledge alone is not sufficient to alter favorably patient behavior in these groups.

3. Patient Satisfaction: Patients are pleased to have continuous access (including telephone access) to RNs, RDs, and MDs who know them as individuals. Patients are also pleased to be included as integral members of their own treatment team. The number of visits to the Diabetes Unit has increased three-fold since 1968 (Fig. 3), the number of

broken clinic appointments has decreased, and the number of complaints to the administration concerning the operation of the clinic has decreased from several each month to none.

4. Professional Satisfaction: There are now enough trained personnel who are working in adequate facilities using adequate equipment to deal with the problems presented by the entire known diabetic population in an optimal fashion. This has increased the desire of patients to learn, and has motivated most of them to favorably alter their behavior. This in turn has resulted in more optimism, dedication, enthusiasm, and pride in work done among the professionals. The frustration of having too little time and too little knowledge to deal optimally with diabetes has disappeared. The chaos that was common when severe diabetic ketoacidosis was treated in the Medical Emergency Clinic has disappeared. There is now less episodic, and more continuous care. All team members attend conferences and rounds, and are involved in patient and professional teaching. This provides on-going effective communication between all who are concerned with caring for the patient, including the patient himself.

5. Cost-Effectiveness: Abandoning the use of oral agents (Fig. 2) has saved the hospital $300,000 in the last four years, and decreasing the number of cases of severe diabetic ketoacidosis has saved the hospital $700,000 in the last four years. The hospital administration has in turn reinvested this money in professional salaries, patient education materials such as Diabetes Guidebook: Diet Section, equipment, and facilities. This has resulted in earlier diabetes detection and more optimal continuing care.

To answer the question, "Is an education program effective?", the answer is "Yes", provided that the patient is cooperative, provided that the educational experience is patterned to the patient's needs, and provided that the patient has access to continuing quality health care. Although quantitation of outcome re acute complications, re patterns of practice (process), re patient and professional satisfaction, and re cost-effectiveness is relatively easy, quantitation of outcome re prevention of or delaying the appearance of chronic complications is much more difficult and will require much more time. Available data suggests, but does not prove, that a good preventive foot care program can decrease the number of lower extremity amputations. Data collection is progressing, new education methods are being developed, and behavior modification techniques are being investigated. If adequate personnel and adequate financing continue to be available, clear cut answers to some of the presently unanswered questions should be available in the next few years.

REFERENCES

1. Davidson, J.K. Diabetes in Socioeconomically Deprived Neighborhoods. In Diabetes Mellitus: Diagnosis and Treatment, Vol. III, 207-210. Fajans, S.S., Sussman, K.E., Ed. American Diabetes Association, New York, 1971.

2. Freymann, J.G. The American Health Care System: Its Genesis and Trajectory. Medcom Press, New York, 1974.

3. Miller, L.V., Goldstein, J. More Efficient Care of Diabetic Patients in a County-Hospital Setting. New England Journal of Medicine, 286: 1388-1391, 1972.

4. Davidson, J.K., Goldsmith, M.P. Diabetes Guidebook: Diet Section. The Litho-Krome Co., Columbus, Georgia, 1972.

5. Davidson, J.K. Educating Diabetic Patients About Diet Therapy. International Diabetes Federation Bulletin. In press.

6. Davidson, J.K., Reuben, D., Sternberg, J. Diabetes Screening Using a Quantitative Urine Glucose Method. Diabetes. In press.

7. Davidson, J.K., De Bra, D.W. Five Years' Experience with Sulfated Insulin Therapy of Immunologic Insulin Resistance. Diabetes 23: 352, 1974.

8. Davidson, J.K. When Friends and Patients Ask About FDA and the Hypoglycemic Drugs. Journal of the American Medical Association. In press.

9. Davidson, J.K., et al. Syllabus, Sixth Allied Health Postgraduate Course of the American Diabetes Association. Emory University School of Medicine, Atlanta, Georgia, 1974.

10. Davidson, J.K. Diabetes Mellitus in Adults. In Current Therapy, 386-409. Conn, H.F., Ed. W.B. Saunders, Philadelphia, 1974.

Table I

CHRONOLOGY OF THE DEVELOPMENT OF THE GMH DIABETES UNIT

(1) September 1968 - June 1970
1. Initial problems identified.
2. Some financial support obtained.
3. Basic strategy developed.

(2) July 1970 - June 1972
1. Observation Ward (8 beds) opened to treat all DKAs (August 1970).
2. Course titled Problem Solving in the Diagnosis and Treatment of Diabetes Mellitus and Its Complications held for physicians, allied health personnel, students, and housestaff (October 30-31, 1970).
3. Sulfonylurea and phenformin therapy abandoned (November 1970 - April 1971).[8] Night Diabetes Clinics (opened Jan. 1971; closed 1973).
4. Diabetes Day Care Center, now named Diabetes Detection and Control Center (DDCC) opened (January 11, 1971) and collection of problem oriented medical record complete data base, evaluation and appropriate revision of treatment program, and intensive patient education started.
5. Oxygen rate method glucose analyzer obtained to measure stat plasma glucoses in DDCC (January 11, 1971), Diabetes Clinic (Jan. 1971), and on Observation Ward (March 1971).
6. First Senior Resident Fellow in Diabetes-Endocrinology hired (July 1971).
7. First Diabetes Nurse Clinician hired to work in clinic (August 1971).
8. Diabetes Guidebook: Diet Section[4] published (November 1971) and diet therapy and education intensified.
9. Georgia Regional Medical Program funding obtained to start course on diabetes for physicians, nurses, and dieticians in practice (September 1971); since July 1973, this training program has been supported by the Georgia Department of Human Resources.

(3) July 1972 - March 1975
1. Observation Ward bed capacity increased from 8 to 16 (April 1973).
2. Senior Resident Fellows in Diabetes-Endocrinology increased from 1 to 2 (July 1973).
3. Ongoing audit of severe diabetic ketoacidosis (CO_2 less than 10 mEq/L), hypoglycemia (plasma glucose less than 50 mg/dl), and amputations started (July 1973).
4. Therapeutic strategy directed toward producing weight loss in the obese diabetic intensified by widespread use of short-term inpatient and outpatient fasts (1 week); insulin therapy used in

Table I Continued

the obese diabetic only if diabetes acutely decompensates (started in 1973).[5]

5. DDCC RNs increased from 1 to 2, RDs from 1 to 2, MDs from 1 to 4 (3 part-time) during 1974.
6. Resident manned Diabetes Clinic replaced (January 1974) by Diabetes Clinic manned by 5 Diabetes Nurse Clinicians, 2 Senior Resident Fellows in Diabetes-Endocrinology, and 1 faculty diabetologist (fully operational January 1975).
7. Initial diabetes screening program using oxygen rate method random urine glucose measurement carried out (1956 patients not known to have diabetes) in General Adult Clinic (July 1974).[6]
8. Increasing collaboration between Vascular Surgeons, Podiatrists, Physiotherapists, and Occupational Therapists concerning lower extremity lesions and amputations (started in 1974).
9. Teaching library of TV tapes, slides, films, books and journals greatly expanded during 1974.
10. Policy and procedure manual and disease process standards written (1974).
11. American Diabetes Association 6th Allied Health Postgraduate Course in Diabetes held (April 1974) and syllabus published.[9]

(4) March 1975 - Future

1. Adequate space occupied in March 1975 (Figure 1-A & Figure 1-B).
2. 100 patients per day are being seen in the Diabetes Clinic (26,000 per year).
3. It is anticipated that 18 patients per day will be seen in the Diabetes Detection and Control Center in the near future, and that all known diabetics will have had a complete data base collected and will have been intensively educated by the end of 1977.
4. In the future all medical and surgical inpatients and most outpatients will be screened for diabetes using a non-invasive oxygen rate method to measure accurately the glucose level in randomly collected urine. Only about 3% have levels above 25 mg/dl and need followup glucose tolerance tests, and this group includes essentially all of the diabetics.[6]
5. Teaching and research activities will continue to expand.

Table II

PROBLEMS ENCOUNTERED IN THE DEVELOPMENT OF THE GRADY MEMORIAL HOSPITAL DIABETES UNIT

Problems	Initial Plans	Followup Plans	Current Status (1975)	Financed
1. Diabetes Clinic (1968-1970).				
A. Insufficient equipment and supplies.				
1. no stat plasma glucoses.	Plasma glucoses (3 hr. lag) by central lab technicians.	Stat plasma glucoses (few min.) oxygen rate method glucose analyzer DDCC (Jan. 1971), DC (Jan. 1971).	3 oxygen rate method glucose analyzers in DDCC and DC, 2 in Obs. Ward.	EUSM (1) GMH (4)
2. inadequate teaching literature.	RD hired: survey and plans for diet manual.	Diabetes Guidebook: Diet Section published November 1971.	Copy of DGB: DS given to each pt. Plans to publish Diabetes Guidebook: General Section being formulated.	GMH EUSM
B. Insufficient space (two 3-hr. clinics per week in Medical Clinic area).	Set up Diabetes Day Care Center (DDCC) to educate patients and collect complete data base.	Diabetes Day Care Center (January 11, 1971) - GMH 10-D. Staffed by MD, RD, RN, DPM. 6 pts. per day: education and complete problem oriented data base.	Diabetes Detection and Control Center (DDCC) opened (March 10, 1975) (Fig. 1-A). Now 2 MD - RD - RN teams will see 18 pts. per day; complete data base collected on 4000 pts. in 4 years.	GMH

Table II Continued

Problems	Initial Plans	Followup Plans	Current Status (1975)	Financed
C. Insufficient personnel (4-6 residents or interns who rotated on and off service every 1-6 months, 2 staff RNs, 2 part-time clinic RDs). 1. no continuity of care. 2. inadequate pt. education. 3. source-oriented medical record with incomplete date base. 4. poor metabolic control. 5. frequent acute & chronic complications.	Restructure Diabetes Clinic to provide continuous care and good metabolic control. 1st Senior Resident Fellow (July 1971). 1st Diabetes Nurse Clinician (August 1971).	Nurse Clinician Diabetes Clinic (8 clinic/week, 3 RNs) started seeing pts. on a regularly scheduled basis (July 1972). Resident Diabetes Clinic phased out (Jan. 28, 1974).	Diabetes Clinic (DC) opened (March 10, 1975) 5 RNs, 2 RDs, 2 Sr. Res. Fellows, 1 faculty diabetologist. 10 clinics/week, 500 pt. visits per week. DDCC and DC will provide continuous comprehensive primary care in the future.	GMH

Table II Continued

Problems	Initial Plans	Followup Plans	Current Status (1975)	Financed
2. Episodic, crisis-oriented approach to diabetes therapy (1968-1970).				
A. More than 500 severe DKAs (CO_2 less than 10 mEq/L) per year, 2/3 treated in Medical Emergency Clinic or Diabetes Clinic.	Admit all patients with plasma glucose $\geq$ 500 mg/dl and/or moderate-large urine acetone to inpatient medical service for treatment.	Observation Ward (8 beds) opened August 1970. Observation Ward (16 beds) opened April 1973.	$700,000 saved in last 4 years by decreasing number of cases of severe DKA (187 cases of DKA in 1974, a decrease of 63% since 1970).	GMH
B. Insufficient foot care; estimated half of amputations preventable.	Adequate preventive foot care and education re care of feet.	DPM full-time since January 1971. All diabetics now evaluated and educated re foot problems.	Amputations decreased from 208 (1973) to 158 (1974), a decrease of 24%; ongoing amputation audit, amputation rounds, special shoes for neuropathic feet.	GMH
3. Insufficient inpatient teaching and supervision (1968-1972).	Improve inpatient teaching and supervision.	1 diabetes teaching nurse in Medicine (Sept. 1972). 1 diabetes teaching nurse in Surgery (Nov. 1973).	On-going audits of all diabetics admitted to Medical and Surgical services; the 2 teaching nurses work with staff nurses, housestaff, and patients.	

Table II Continued

Problems	Initial Plans	Followup Plans	Current Status (1975)	Financed
4. University Group Diabetes Program Report on Tolbutamide and Phenformin (1970-1971).	Abandon sulfonylurea and phenformin therapy[8] (Fig. 2). Night Clinics set up to accomplish this (Fig. 3).	Intensify education re diet therapy and utilize short-term inpatient and outpatient fasts to obtain sufficient weight loss.	$300,000 saved in last 4 years. Rediscovery of therapeutic effectiveness of weight loss from diet therapy and fasting.[5] Less insulin used in 1973 and 1974. Converted to use of U-100 insulin 1973-74.	GMH
5. Immunologic insulin resistance (1968).	Sulfated Insulin Investigational New Drug number obtained from FDA (1968).	40 patients treated successfully to date.[7]	Plans for national collaborative study of sulfated pork insulin being formulated.	NIH EUSM GMH
6. Insufficient Professional Education (1968-1970).	Secure training grant and adequate teaching literature and audiovisual equipment.	1970 Diabetes Course: TV tapes and syllabus. 1974 ADA Allied Health Postgraduate Course, TV tapes and syllabus, other TV tapes, films, slides, journals, and books acquired.	Space (Fig. 1-B), equipment, and supplies now adequate. 53 MDs and 201 allied health professionals trained in last 3 1/2 years. Students and housestaff training to be intensified.	GRMP (9/6/73) GDHR (6/ present)

Table II Continued

Problems	Initial Plans	Followup Plans	Current Status (1975)	Financed
7. No diabetes screening program (1968-1974).	Preliminary screen of 1956 patients in General Adult Clinic[6] (1974).	Oxygen rate method (ORM) random urine glucose screening evaluated and found to be very effective.[6]	Routine screening of all medical & surgical inpatients and most medical outpatients using ORM random urine glucose measurements.	GMH EUSM
8. Insufficient research.	Increase research effort.	Immunologic insulin resistance (see 5.). Diabetes screening (see 7.). Drug evaluation studies (glyburide, glipizide). Effects of diet therapy and fasting on obesity-induced diabetes.	Immunologic insulin resistance, diabetes screening, and diet therapy of obesity-induced diabetes studies still in progress. Other studies will be undertaken as funding becomes available.	NIH EUSM

Key to financing:

GMH = Grady Memorial Hospital: Medicaid, Medicare, County taxes
EUSM = Emory University School of Medicine: Medicaid, Medicare, drug company grants, bequests
GRMP = Georgia Regional Medical Program: federal taxes
GDHR = Georgia Department of Human Resources: state taxes
NIH = National Institutes of Health: research grant

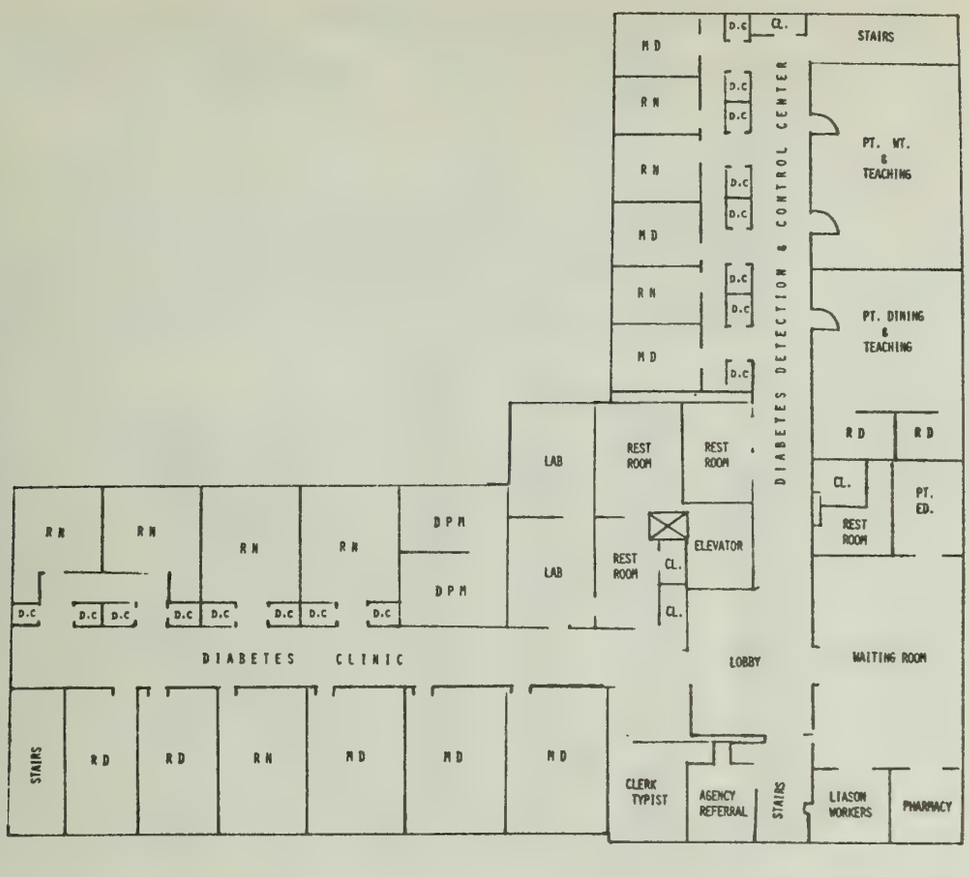
Figure 1-A: Floor plan of the Diabetes Clinic, Diabetes Detection and Control Center and Podiatry Clinic. Office space is assigned to professionals as noted: MD, RN, RD, or DPM. Abbreviations: D.C. = dressing closet, CL. = closet, Pt. Ed. = patient education.

Figure 1-B: Floor plan of the Diabetes Professional Teaching and Diabetes Research sections of the Grady Memorial Hospital Diabetes Unit.

Figure 2: Pattern of oral hypoglycemic tablet and insulin use by Grady Memorial Hospital (1969-1974). No oral hypoglycemic tablets have been used since 1970, and less insulin was used in 1973-74 than in 1971-72.

Figure 3: Number of patient visits to different components of the Diabetes Unit (1967-1974). The Nurses' Clinic was renamed Diabetes Clinic on March 10, 1975. Since then, patients are scheduled for (1) The Diabetes Detection and Control Center (DDCC) for complete data base collection and education (2) The Diabetes Clinic (DC) for followup or (3) The Podiatry Clinic for foot care.

Figure 4: Venn diagram showing the interrelationships of the components of the Grady Memorial Hospital Diabetes Unit and patterns of patient traffic flow to and from other outpatient and in-patient hospital areas.



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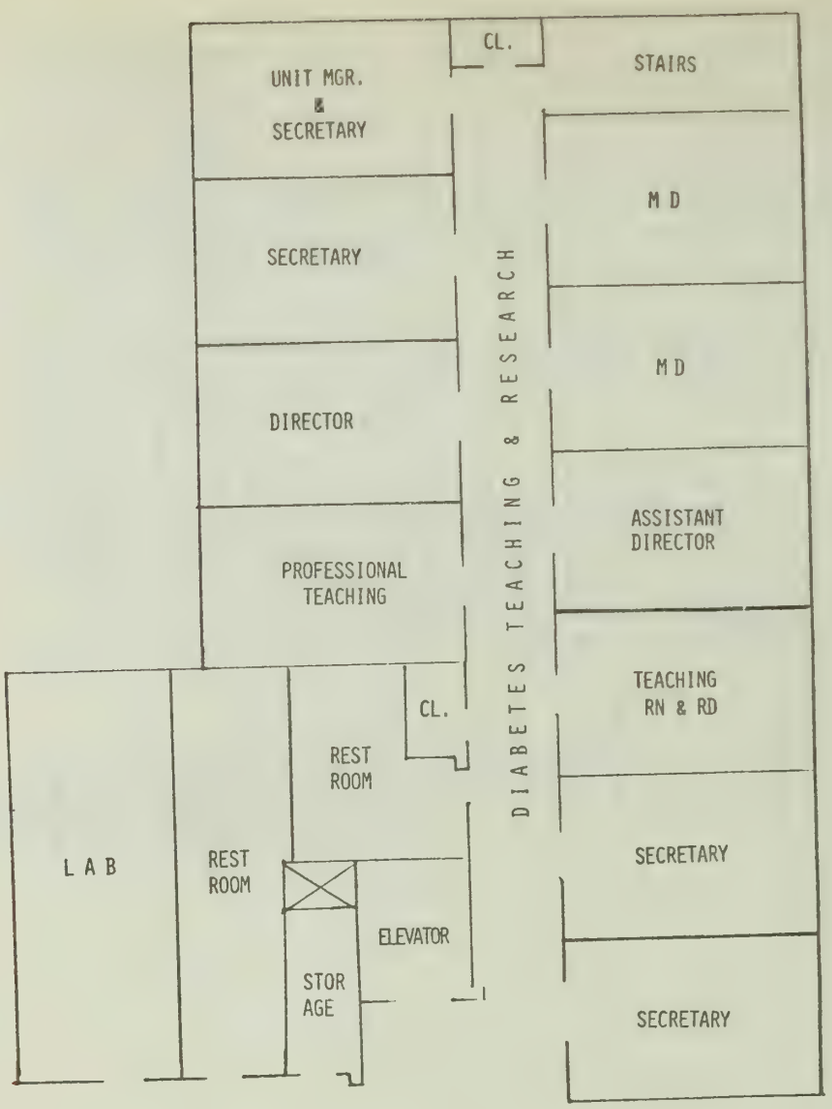
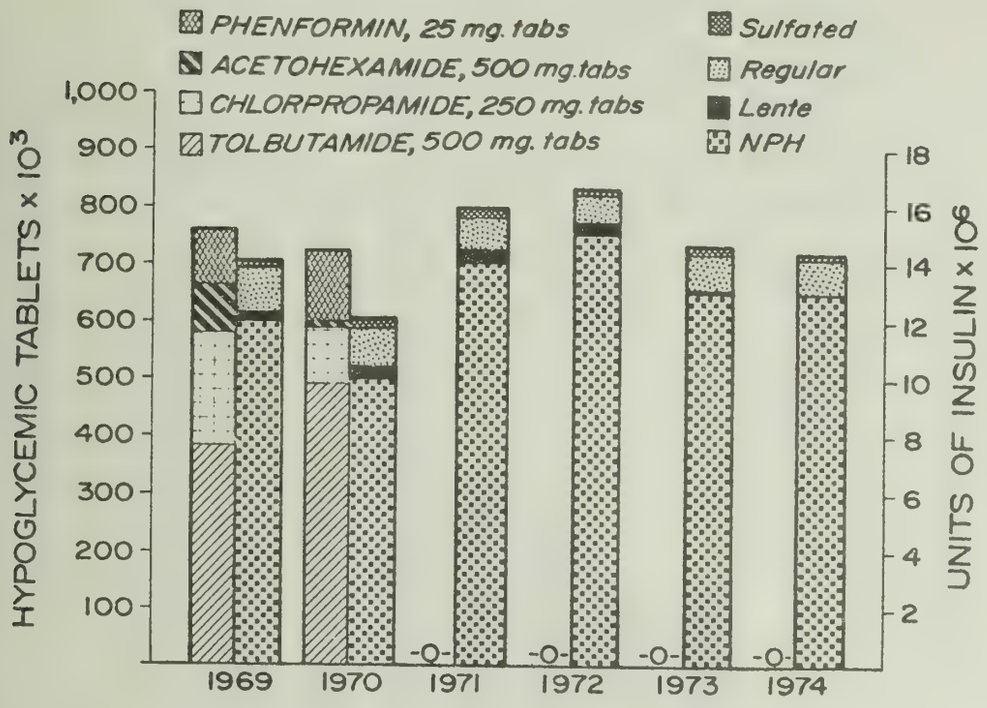


Figure 1-B: Floor plan of the Diabetes Professional Teaching and Diabetes Research sections of the Grady Memorial Hospital Diabetes Unit.

HYPOGLYCEMIC TABLETS AND INSULIN USED AT GRADY MEMORIAL HOSPITAL (1969-1974)



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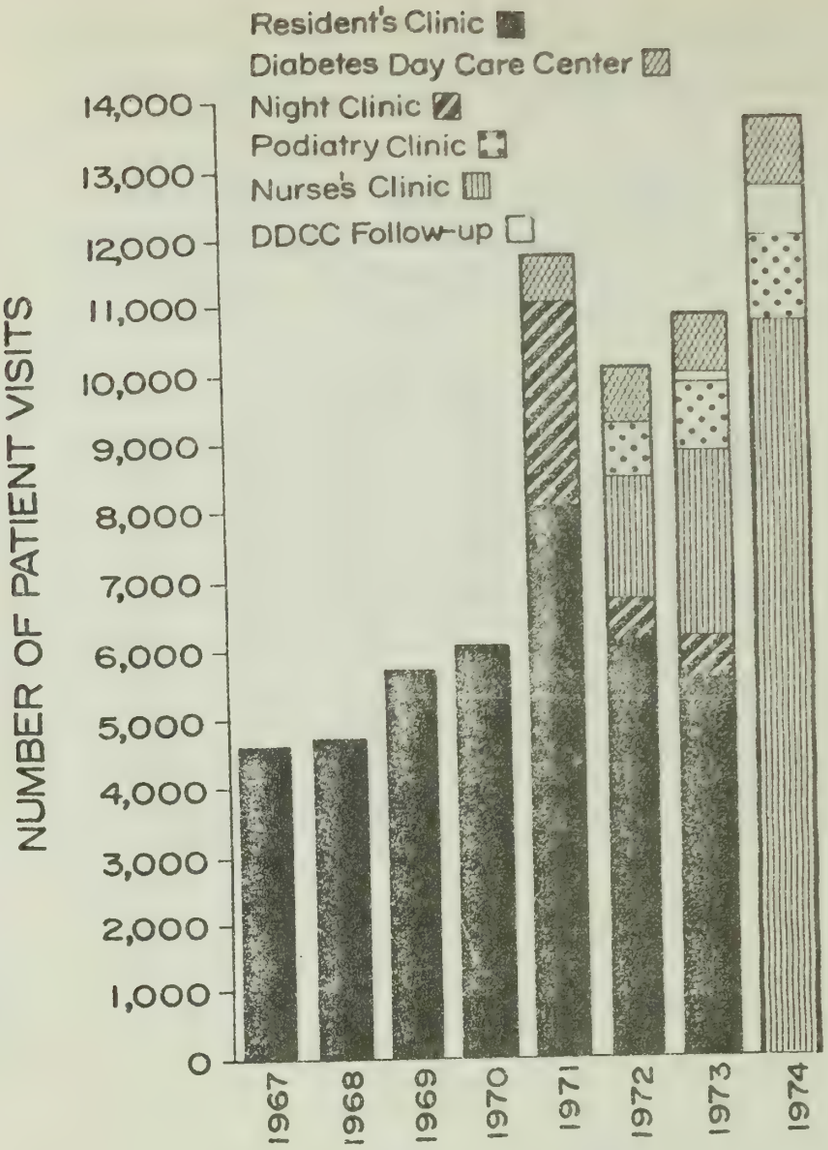


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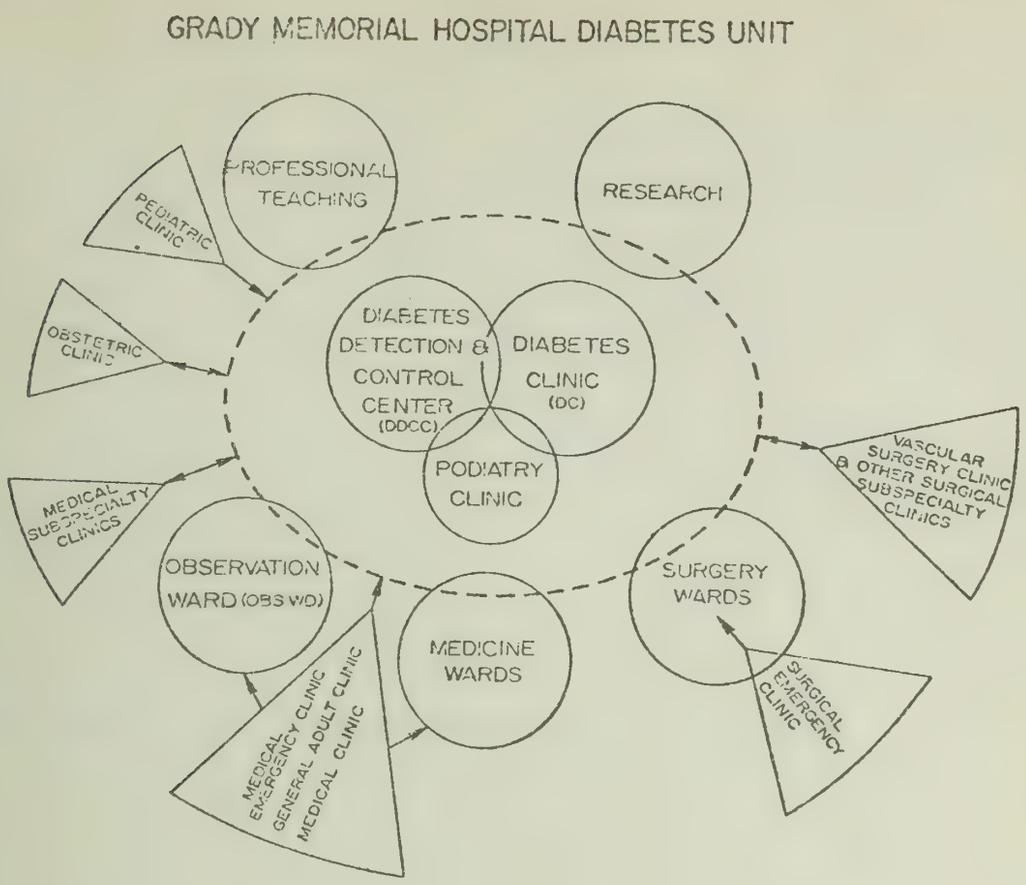


Figure 4: Venn diagram showing the interrelationships of the components of the Grady Memorial Hospital Diabetes Unit and patterns of patient traffic flow to and from other outpatient and inpatient hospital areas.

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APPENDIX 8

ADA GUIDELINES FOR PROGRAMS ON EDUCATION ABOUT DIABETES

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A communication device designed to speed the exchange of news, information and data on Regional Medical Programs and related activities.

"Proposed Guidelines for Programs on Education About Diabetes Mellitus"

January 12, 1973 - Vol. 7, No. 1S

This issue contains the "Proposed Guidelines for Programs on Education About Diabetes Mellitus in Health Services Activities Supported by Regional Medical Programs" which were developed by the American Diabetes Association. These guidelines were approved at the annual meeting of the Association in June 1972 and are forwarded for your information in the planning of diabetes education activities.

Distribution:
- .Coordinators and Directors of Regional Medical Programs.
- .Members of National Advisory Council and Review Committee on Regional Medical Programs.
- .Staff of Regional Medical Programs Service.
- .Regional Health Directors.
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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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PROPOSED GUIDELINES FOR PROGRAMS ON EDUCATION ABOUT DIABETES MELLITUS IN HEALTH SERVICES ACTIVITIES SUPPORTED BY REGIONAL MEDICAL PROGRAMS

Introduction

Diabetes mellitus afflicts almost 3% of the total population of this nation and occurs in 20% or more of the aged. Once present, this condition requires continued, day-to-day attention by the patient and his family and frequent review by health personnel, including usually physician, nurse, dietitian and others.

The patient who develops diabetes lives with his disease for a longer period of time than with almost any other chronic illness. Throughout its course there are innumerable opportunities for prevention of serious acute and chronic complication; among these major problems are atherosclerosis, heart disease, stroke, blindness and renal disease. Among the greatest health needs of these individuals is a proper understanding and knowledge of their role and responsibilities in the control of their chronic illness. Thus, in any system or setting in which primary health care is to be furnished, it is essential that there be a well-planned systematic approach to the needs of the people with diabetes.

With the advance in knowledge of management of diabetes, patient education and support, any primary health service unit -- health maintenance organization or other -- should be considered negligent if it does not offer a systematic program for diabetic education to its affected patients.

Over the past five years a number of Regional Medical Program-supported projects have provided an impetus for major contributions to educational programs for patients and professionals. The changing emphasis presently appearing in Regional Medical Programs toward increased emphasis on consumer health education, on health maintenance rather than crisis care, on the development of ambulant care in organized primary health care centers, should provide even greater opportunities for diabetic education.

With this background, the following guidelines have been prepared with the aim of encouraging and assisting Regional Medical Programs to help develop systematic education services for diabetic patients in

the various types of primary health care settings in their regions. Such services should also serve as models for health education of patients with other major chronic diseases.

Objective & Program Goals

The ultimate objective is to (1) make available to every person with diabetes, a systematic and appropriate educational experience covering diabetes and (2) a continuing support program capable of achieving the recommended measures of treatment and health maintenance.

Efforts to reach this objective must take place in the various settings in which diabetic patients receive their primary and continuing health care, including doctor's offices, neighborhood health centers, family health centers, health maintenance organizations of all types, hospitals and their clinics, and chronic institutional settings. Thus, the major goal of a diabetes education program must be to provide the necessary educational services in all of these settings.

Furthermore, in developing such a program, it is essential to recognize and deal with the extent of unmet needs for diabetes education and the severe limitations on meeting these needs in all primary health care settings. Information about these factors, which comes from previous efforts of RMP-supported diabetes projects as well as other studies, includes:

a) Recognition of the widespread lack of knowledge about diabetes and about practical details of its treatment, among patients and health professionals.

b) Recognition of severe limitations on the time of practicing physicians and the scarcity of facilities for teaching diabetic patients.

c) Recognition of the needs to develop and initiate new systems designed to meet the educational needs for diabetic patients, in both old and new primary health care settings.

Specific program goals should include:

1) Identification of the approximate number of diabetics being cared for in the various primary health care settings of communities in the region, as well as an estimate of the additional numbers of persons with diabetes who will be coming under care in the various settings as efforts to make primary health care more accessible become effective.

2) Identification of existing resources in the region for education of diabetic patients and education of specialized health personnel who can then participate in educational programs for patients.

3) Development of a plan for providing systematic and continuing diabetes patient education tailored to each type of primary health care setting. This plan should include a systematic statement of the educational content and of the educational methodology including the specific educational roles of various types of health professionals and the types of educational materials and teaching aids to be used.

4) Development of a plan for training the specialized health professionals who will be needed in carrying out the diabetes educational programs in the various settings, including the utilization and strengthening of existing diabetes educational resources and/or development of new resources.

5) Experience in implementing diabetes educational programs for patients in each of several types of primary health care settings in the region, upon which refinements and expansion to other health care settings in the region can be based.

Program Development & Staffing

Program development needs to proceed at two levels: First, at the regional level from which should emanate innovative leadership, funding, coordination of activities throughout the region, and evaluation; and second, within individual primary health care settings or environments, where the actual implementation of the teaching of patients must occur.

Experience in existing RMP-supported and other diabetes educational programs has provided considerable knowledge which should be a help in further program development of the nature described herein and should be drawn upon in detail through channels listed below. In brief, this experience has shown that the following staffing is essential at each of the two levels of program development.

At the regional level, it is necessary to have:

One or more physicians with academic interest and competence in diabetes, interested in innovative educational efforts with diabetic patients and other health personnel and carrying the confidence of the practicing physicians in the primary health care settings.

One or more nurses with special knowledge about the competence and interest in diabetes, capable of taking a major role in the training of diabetes nurse specialists for primary health care settings.

Dietitians or nutritionists as staff members or consultants in developing training programs for staff of the primary health care setting and the nutritional and dietary elements of educational programs for patients.

An administrator and secretarial assistance for the operation of the project.

Consultant assistants, including additional physicians, nurses and dietitians specializing in diabetes to take part as teachers in training programs and workshops, and experts such as health educators in development of educational materials and methodology.

At the level of primary health care settings, essential staff ncludes:

At least one physician with sufficient competence and interest in improving diabetic care to take an appropriate part in patient teaching and to support and give medical guidance to nurse and dietitian specialists who will be carrying on most of the educational activity in that setting.

One or more diabetes teaching nurses who, having received special training, will be the key persons in carrying out these educational programs with patients and in the continuing process of reassessment of patient needs and approaches to help them accomplish recommended preventive and therapeutic measures.

One or more dietitians or nutritionists, again with special training, to take an appropriate role in the teaching program with the diabetic patients being cared for in the specific primary health care setting.

esources for Programs Development

An important outgrowth of the existing RMP-supported diabetes ducational projects has been the development of a consortium of interest nd a pooling of resources and experience which should be valuable in the ort of development of programs described herein. A focal point for hese efforts is the Committee on Regional Medical Programs and Diabetes

Education Centers of the American Diabetes Association. Further information and assistance may be obtained from the Committee through the National Office of The American Diabetes Association, Inc., 18 East 48th St., New York, N.Y., 10017; telephone number (212) 752-8550.

APPENDIX 9

PROFESSIONAL EDUCATION: DIETETIC PERSONNEL

UNIVERSITY OF CALIFORNIA

PROFESSIONAL EDUCATION - DIETETIC PERSONNEL

Dorothea Turner and Mildred Kauffman

State of the Art

An estimated 5,000,000 persons in the U.S. currently require treatment for diabetes of juvenile or maturity onset. Since no cure is now available, the patient and/or his family must be taught and motivated to assume responsibility for lifelong management of the condition. It is also estimated that because the tendency to diabetes is inherited, there are an equal number of persons with unidentified diabetes. Obesity is commonly associated with maturity onset diabetes and its prevention may prevent the onset of frank diabetes in persons over age 40. Diet is identified as one of the major factors in the prevention of obesity and in management of diabetes. Nutrition education and diet counseling are then basic services required both for primary and secondary prevention of diabetes.

Data from the Diabetes Supplement to the National Health Survey conducted in 1964-65 (1) showed that 22% of respondents said that they were not given a diet and 25% said that they were given a diet but did not follow it. Of the 77% of respondents who reported receiving a diet, only about 3/4 said that they had been taught how to use it while only 53% of the total sample said that they followed their diet. (1) Of those who reported using the Exchange system, only 26% scored as having "good" knowledge of it. However, dietitians were twice as successful as nurses or physicians in influencing knowledge about diet.(2)

In 1971, a survey was made by Etzwiler (5). Questionnaires were sent to 100 nurses, 100 dietitians, and 100 physicians throughout the U.S. In response to a request to list problems encountered in treatment, the following were listed: lack of sufficient time; lack of patient cooperation; lack of sufficient staff. Problems encountered in using the interdisciplinary approach were: lack of communication between physician and other members of the team; lack of planned educational program; lack of time; lack of teaching personnel; lack of knowledge and skills among health personnel to provide patient education.

In 1973, Dr. Mary Scialaba made observations in a number of ambulatory care centers. The needs expressed by nutritionists in these settings were for: more depth in bio-sciences, communications, educational diagnosis, preparation of appropriate

media for various learners, and modifications in methods of teaching for various learners, more on behavior modification, evaluation of educational programs, better coordination and integration with the health team, legislative know-how, political science, cost-benefit analysis and fiscal planning.

In September, 1973, Dr. Kelly West, in an article titled "Diet Therapy of Diabetes: An Analysis of Failure" (3) reviewed available evidence which clearly showed the rarity with which persons with diabetes understood and followed their diet prescriptions. Dr. West attributed failures to the tendency of physicians to underestimate the formadibility of developing, implementing and adjusting a diet prescription that is both acceptable and effective over a long period of time and the limited conceptual and technical knowledge of most physicians concerning dietary principles, strategies, and tactics as they apply to the various types of diabetes. With newer concepts of using other health professionals as physician extenders, dietitians and nutritionists should increasingly be used as a resource in planning and implementing dietary management of diabetes. The question then arises regarding the availability of dietitians-nutritionists to assume these responsibilities.

Dietitians and nutritionists are currently employed in a variety of community and institutional settings. The membership of The American Dietetic Association in November, 1975, numbered 25,631. Of these, 10,477 were employed in hospitals with 4,984 indicating major responsibilities to be clinical or therapeutic nutrition. Another 2,916 hospital dietitians indicated general responsibilities probably including some diet therapy. Also about 800 members were employed as public health nutritionists. A survey conducted by Noland (6) indicated that therapeutic dietitians may spend about 12 per cent of their time in patient contacts. On the other hand, the major amount of the time and effort of the public health nutritionists is largely educational in nature.

The total amount of teaching time now being devoted specifically to the needs of the diabetic is unknown. It might be speculated that the full time equivalent of less than 500 dietitians and nutritionists is being utilized by the 5,000,000 Americans with diabetes.

It has been estimated by Etzwiler that each diabetic might need between 5 and 10 hours of education if he is to manage his own diabetes successfully. If the diabetic were to receive an estimated average of 5 hours or nine contacts per year for initial and follow-up counseling from a dietitian or nutritionist, the full time equivalent of 12,000 dietetic personnel would be required.

Most health care facilities and health agencies have not adequately addressed the unique dietary problems created by diabetes. As a result, they are understaffed and underfunded.

Because many physicians and nurses have not accepted the dietitian or nutritionist as a full member of the health care team, frequently dietitians or nutritionists are not included in planning for patient care, do not have access to patient records and are handicapped by inadequate time for patient contact. Inexperienced dietitians are often reluctant to initiate diet counseling for hospitalized patients until discharge diets are ordered.

Dietary counseling has not been recognized as a therapeutic service to be costed out or listed as a reimbursable service under most health insurance or federally funded health programs. This has created a vicious cycle of inadequate staff, funding and quality of service.

A large number of dietitians and nutritionists available to the vast majority of health professionals and patients do not have the time or expertise to:

1. Individualize diet counseling to specific therapeutic needs and life styles of persons with diabetes.

2. Provide adequate orientation to dietary management to the hospital or nursing home patient and monitor him for acceptance.

3. Make an educational diagnosis of each individual person with diabetes, evaluate, select and prepare appropriate teaching aids. Modify teaching methods appropriately.

4. Provide continuing education, follow-up and referral that would be reinforcing and supportive to making necessary lifetime changes in the eating pattern required for diabetes management.

5. Utilize and communicate through the problem-oriented patient record.

6. Provide for adequate referral to supportive community agencies.

7. Meet the needs for counseling patients not requiring hospitalization.

Medical centers and health agencies throughout the United States approach diabetes programming utilizing the team concept and integrating the skills of the dietitian-nutritionist in the planning, implementing and evaluating of the various facets. Many dietitians-nutritionists working in these settings have developed expertise in diabetes screening, professional, patient and public education , and diet counseling, uniquely adapted to motivate and guide persons with diabetes. More such settings can and need to be developed to serve as training and resource centers for dietetic personnel as well as for other health personnel involved in team therapy. (7) (8)

JUSTIFICATION OF NEED

Dietary management is generally considered to be basic to the day-to-day control of diabetes, to weight control, and to the long term nutritional well being of the person with diabetes. Because the required dietary modifications usually impose major changes in long-established eating habits and life styles as well as learning new concepts about composition of food, individualized diet counseling is basic to successful diabetes management and is currently agreed to be a cornerstone of diabetes patient care and education. The Registered Dietitian-Nutritionist should be the professional with the expertise and sensitivity to provide meaningful education and motivation in this area. Comprehensive nutritional and dietary assessment provide the basis for the physician, and for counseling the patient considering his food preference, ethnic food patterns, customary food habits, budget, food preparation facilities, family setting, level of education, physical activity and other factors relating to available and acceptable food. The nutritional care plan as part of total patien diabetes management must be developed in cooperation with the total health team and the patient in making decisions about what modifications in diet he can accept and live with.

Diet teaching aids and educational materials of suitable language and reading level are tools to convey information needed about nutritional needs, food composition and food choices.

Initial diet counseling for diabetes is used to assess patient needs, capabilities and develop rapport as well as to begin the counseling process. Follow-up counseling is needed for continuing dietary adaptation, reinforcement, encouragement and support. Added information must be provided as the patient requests and requires it and as his needs change. Nutritional care plans and follow-up should be documented in the medical record and communicated to other health professionals by all persons working with the patient and his family. Registered Dietitians employed in the medical center, community , hospital, outpatient clinic, or

in group medical practice and/or public health nutritionists in community health agencies are the primary resource persons to provide diet counseling to patients with diabetes. Nutritional assessment and continuing counseling improves the potential for the patient to assume responsibility to manage his diabetes more effectively with or without medication. Physicians, nurses, social workers and other therapists must appreciate the nutritional basis of diabetes management so that other aspects of treatment are coordinated and so that support, encouragement, and reinforcement is given to the diet counseling.

Since diet is agreed to be a major part of treatment the dietitian-nutritionist must participate in program planning and patient care as well as in professional education for other members of the health team. This involvement with the total team motivates patients, makes the team aware of limitations of patients, and families compliance.

Any standards established for diabetes care should be written to include delineation of the nutrition assessment, nutritional care and diet counseling component. This is needed to provide uniform quality of service, basis for evaluation and dietary audit, and to serve as the basis for costing and cost reimbursement. Nutritional services must be specifically identified for funding through third party payment mechanisms which might be established in National Health Insurance as well as currently available health insurance. At the White House Conference on Food, Nutrition and Health (9) it was specifically recommended "that the services of a nutritionist should be made reimbursable under Medicare and Medicaid and other third party programs and agencies." Until nutrition services are clearly identified for cost reimbursement, they must compete for available funding with other health education services.

FUNCTIONS OF THE DIETITIAN/NUTRITIONIST IN DIABETES PROGRAMMING

1. In cooperation with the core planning group of the diabetes program, participates in developing policies, standards, strategies and evaluation for diabetes program according to needs identified in the population to be served and overall program for diabetes prevention and control.

2. Function as the resource person in the area of nutrition, food and dietary needs of persons with potential and diagnosed diabetes, to plan and conduct education of the public, patients, and their families, plus members of the health team.

3. Assess nutritional status and needs utilizing nutritional assessment methodology including diet history; medical,

anthopmetric and laboratory data; medical and social history, etc., and taking into account activity, physiologic state, age, drug and other therapy, food preferences, educational level and socio-economic and cultural determinants.

4. Develop and implement nutritional care plan based on the assessment coordinated with medical orders and related patient care plans.

5. Provide and/or arrange for initial and followup counseling related to the nutritional assessment and continuing needs of each individual with diabetes and his family.

6. Communicate with health team members verbally at staff or case conferences and in writing in patient records and through other accepted channels of communication.

7. Provide or arrange for any appropriate food service based on accepted standards of nutrition and dietary management of diabetes (hospital, nursing home, school, camp, child day care, meal program for the elderly, etc.)

8. Catalog and refer to appropriate community service programs which may help persons with diabetes meet their food needs such as food stamp program, home delivered meals, homemaker services, congragate meals, public health services, etc.

9. Monitor and evaluate all aspects of nutritional care program for persons with diabetes in the institutional and/or community setting.

REFERENCES

1. Holland, William M., The Diabetes Supplement of the National Health Survey, III. The Patient Reports on His Diet, JADA, May, 1968, 52:5 pp 388-389, 390

2. Stubb, Sarah C., The Diabetes Supplement of the National health Survey, IV, The Patient's Knowledge of the Food Exchanges, JADA, May 1968, 52:5, pp 393-393

3. West, Kelly M., Diet Therapy of Diabetes: An Analysis of Failure, Annals of Internal Medicine, Sept. 1973, 79:3 pp 425-434

4. Etzwiler, Donnell; Education and Management of the Patient with Diabetes Mellitus. 1973. Ames Company, Elkhart, Indiana.

5. Noland, Marion S. and Steinberg, Ruth; Activities of Therapeutic Dietitians: A Survey. J. Am Dietet. A. 46: 477, 1965.

References (cont.)

6. Scialabba, M., Analysis of Role Functions and Competencies of Nutritional Care Dietitians and Dietetic Technicians, 1974 (Doctoral Thesis)

7. Devitt, G., Commonalities of Curricular Objectives in the Preparation of Nurses, Physical Therapists, and Therapeutic Dietitians at the Baccalaureate Level, 1971 (Doctoral Thesis)

8. White House Conference on Food, Nutrition and Health, 1969 Washington, D.C.

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APPENDIX 10

PROFESSIONAL EDUCATION: NURSES

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PROFESSIONAL EDUCATION: NURSES

Patricia Lawrence, RN and Barbara Christman, RN

I. STATEMENT OF THE PROBLEM

In spite of the fact that nurses in almost every setting are constantly caring for diabetic patients and are in prime positions for influencing the care which diabetic patients will give themselves, it has been demonstrated repeatedly that the knowledge upon which many nurses are providing this care is severely limited. For example, Dr. Donnell Etzwiler identified severe deficiencies in the knowledge of the nurses whom he studied in 1967, and concluded that "results indicate that a great deal of the patients' lack of understanding of diabetes may stem from management by poorly informed professional personnel"(8). Other studies and observations have continued to indicate the same lacks. For instance, the staff of the Diabetes Project of the North Carolina Regional Medical Program pre-tested a large number of staff nurses before conducting educational programs, and found that scores ranged from 17% to 100% (average score of approximately 68%) on material which was considered to be extremely basic information about diabetes (2).

The demonstrated lack of knowledge about diabetes is also being felt acutely by the nurses themselves, who turn out in large numbers for continuing-education offerings related to diabetes. Attendance at the courses offered by the American Diabetes Association and by other national and local groups has often been overwhelming. At least one state (North Carolina) has a faculty member within the state-university school of nursing whose job is primarily defined as providing continuing education to nurses about diabetes, and courses which are offered through this program continue to be in great demand and to draw a large and enthusiastic attendance.

Diabetes teaching has traditionally been done primarily by generalists, and the documented evidence of poor knowledge and performance on the part of patients (3,4) attest to the fact that the job has not been accomplished. Because of the vast amount of teaching that is required by diabetic patients on a continuing basis, it is unrealistic to think that generalists (either nurses or physicians) can provide this teaching in addition to the multiple other demands on their time and energies. It therefore seems apparent that adequate teaching will be carried out only by utilizing health professionals who are employed primarily for that purpose. Because of the orientation of nurses toward patient teaching, it would seem that a majority of such individuals would emerge from that professional base.

Over the past few years there have been increasing numbers of positions available for nurses to specialize in diabetic care. But in spite of the recent increase in many parts of the country, a 1973 survey by Ames Company of all (7,000) hospitals in the country indicated that only 20% of those which responded (approximately 34% of the questionnaires were returned) had what they termed a "formal" patient-education program for diabetics, and only 7% of those responding had a person devoting full time to the program (5). No such data are available for primary-care or other community settings, but clearly there is need for additional teaching programs and positions.

II. IMPACT OF THE PROBLEM

The results of the inadequacies on the parts of nurses are reflected in part in such studies as those by Watkins et al. (3,4) in which patients showed an astounding lack of knowledge about diabetes and an extremely high rate of errors in carrying out the diabetic regimen. Further difficulties ensue when nurses with inadequate knowledge provide other types of care, such as caring for a patient in ketoacidosis or after surgery.

III. STATE OF THE ART

Identified below are several critical factors which influence the recommendations for dealing with the identified problems:

1. The problem of inadequate knowledge on the part of practicing nurses might be dealt with on two levels:

    a. Undergraduate education: Undergraduate nursing education is now changing from a primarily hospital-based diploma training, to education provided by institutions of higher education. As this change has come about, many different types and forms of curricula have evolved. Many have content which is interwoven into the curriculum in such a way that it would be a monumental task to determine exactly what content is being taught throughout the country in specific content areas, and a study to determine this would probably yield ineffective results. It is also recognized that professional education on the undergraduate level must of necessity be of a somewhat general nature, with the emphasis placed on the principles and theories underlying the functions of the profession.

    It is therefore not seen as feasible to launch a major campaign to study and/or alter undergraduate curricula as

they relate to a specific disease entity. This decision is strengthened by the fact that the attrition rate from nursing following graduation is relatively high, and money and effort might better be utilized in the areas of graduate and continuing education. This is not to say, however, that efforts to improve the diabetes content and the team concept of health delivery in undergraduate curricula would not be applauded, and that the resources developed as a result of the following recommendations might not be utilized in improving undergraduate curricula.

b. Graduate and continuing education: It is in these areas that there is, therefore, a demonstrated need for a mass effort to improve the knowledge and skills related to diabetic care. In view of the documented evidence of inadequate knowledge and the desire of nurses for the improvement of that knowledge, it is imperative that continuing-education opportunities be available to all practicing nurses who are caring for diabetic patients.

2. There is evidence in the literature to support the fact that patient care improves as nurse specialists are utilized in caring for diabetic patients (6,7). Such evidence, however, is somewhat scant, and the concept needs to be studied further in order to promote the future development of such teaching programs and eventual improvement in care.

3. The provision of seed money to establish new programs has proven successful in developing programs which have continued after outside funding stopped. For instance, a number of the Regional Medical Programs started such sites which are now continuing. As an example, the Diabetes Consultation and Education Service of the North Carolina Regional Medical Program reported several strong ongoing teaching programs in communities where there was none (2) and this involved a very large percentage of the programs which their seed money started.

4. Among the nurses who are specializing in diabetes, three somewhat differing functions have emerged: (1) the nurse who primarily teaches diabetic patients; (2) the nurse who provides primary care to diabetic patients under the direction of a physician; and (3) the nurse who coordinates a large teaching program, provides supervision or consultation, or conducts educational programs for other nurses.

It is apparent that, as such positions increase in number, it is imperative to define who is qualified to give such types of care and to provide a method of assuring the public and health-care agencies that individuals meet these qualifications.

There are several organizations which might logically provide leadership in preparing such standards, and it would seem appropriate that it be a joint effort of these organizations. They are:

a. The American Diabetes Association which, although it is a voluntary health organization with a large lay membership, also has a direct professional membership composed of physicians, nurses, and other health professionals. Since professional functions overlap, and since the ADA membership represents leaders in the specialty area, it seems that this organization would be an appropriate one to coordinate this effort.

b. The American Nurses Association has already developed standards for practice in several specialty areas, and has recently joined with a specialty organization (NAACOG) to develop a certification procedure for another group of nurses (6). It is our belief that the professional organization which represents nurses should be active in setting standards for those within the profession.

c. The American Association of Diabetes Educators is a new organization of health professionals (with a lay associate membership) who have a primary interest in diabetes education. Its membership is largely nurses and dieticians. It would therefore be appropriate for this group to be involved in setting standards for preparing nurses to teach diabetic patients.

5. At the present time, the courses or programs which prepare nurses to care for diabetic patients are of variable quality and content. In order to implement the standards described in Objective #2, standards for courses must be developed and a system of course approval instituted.

6. Currently there is a dearth of high-quality instructional materials for use in the continuing education of graduate nurses about diabetes. The availability of such materials would both further the development of educational programs for nurses, and extend opportunities for continuing education.

REFERENCES

1. Etzwiler, Donnell D., "Who's Teaching the Diabetic?" Diab. 16: 111-117, February 1967.

2. Data from the Project files, Diabetes Consultation and Education Service of the North Carolina Regional Medical Program.

3. Watkins, J.D. et al., "A Study of Diabetic Patients at Home." Am. J. Pub. H. 57: 452-459, March 1967.

4. Watkins, J.D. et al., "Observation of Medication Errors Made by Diabetic Patients in the Home." Diab. 16: 882-885, December 1967.

5. Ames Company, unpublished data, 1973.

6. Jordan, J.D. and Shipp, J.C., "The Primary Health Care Professional Was a Nurse." Am. J. of Nursing 71: 922-925, May 1971.

7. Miller, L.V. and Goldstein, J., "More Efficient Care of Diabetic Patients In a County-Hospital Setting." New Eng. J. Med. 286: 1388-1391, June 29, 1972.

8. Lawrence, P.A., "The Diabetes Teaching Nurse Program of the Diabetes Consultation and Education Service." Unpublished paper, April 1973.

9. "ANA, NAACOG Initiate Joint Certification," The American Nurse 7:1, July 1975.

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APPENDIX 11

DIABETES AND EMPLOYMENT

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DIABETES AND EMPLOYMENT:
Is there discriminatory practice?

Arthur Krosnick, M.D.

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Is There Evidence of Discrimination Against Diabetics in Industrial Employment Policies?

As a result of reports of discrimination against diabetics, the American Diabetes Association formed a Committee on Employment, studied the problem, and issued a statement which included "Suggested Standards for the Employment of Diabetics"(1). In a study of the three largest companies in the Netherlands, they "had such a small number of female diabetic employees that the investigation had to be limited to male diabetic employees"(2). Kantron indicated that one of two goals of the Vocational and Counseling Service of the New York Diabetes Association was "to liberalize the out-dated employment policies prevalent among many large and small firms in the community, policies that barred the employment of the well-controlled diabetic"(3).

D'Alonzo indicated that the du Pont Company "does not, as a matter of policy, refuse employment to anyone because of diabetes mellitus, except when the applicant cannot demonstrate that he is able to control the disease." The suggested policy and procedure for company physicians, however, was stated as follows: "Uncontrolled diabetes is a severe hazard. These cases should not be accepted, under any circumstances, until the blood sugar is within normal limits and medically controlled." The low observed rate of diabetes in the company was attributed to the fact that "company policy does not favor the employment of severe, uncontrolled diabetes"(4).

According to McGowan, "prior to 1941 persons who were known to have diabetes were not acceptable for federal employment." Subsequent modifications followed the following general lines:

1. "Mild diabetics who require no insulin for the control of their condition present no special difficulty in regard to placement."

2. "More severe diabetics who require insulin and a regulated diet are acceptable for appointment to many positions including arduous-duty positions provided medical evidence shows the condition is under control."

3. "More severe diabetics who require insulin and a regulated diet but who are uncooperative and/or poorly regulated are not recommended for federal employment"(5).

In a recent Minnesota study of 127 firms, 31 percent did not hire diabetic patients (10). The New Jersey study showed a reported prevalence rate of approximately 7 per 1,000 diabetic employees, as compared to a predicted prevalence of 20 to 30 per 1,000 employees, based on epidemiological factors. Despite the notion that there were some

unidentified diabetic employees, this was felt to represent under-employment of diabetics related to hiring practices (7).

A WHO Expert Committee on Diabetes Mellitus "viewed with dismay the restrictions in many countries hindering the employment of diabetics." The report (5) went on to state:

> All too often these restrictions are purely negative and are based on prejudice or ill-informed opinion about the effects of diabetes on a person's working ability or capacity. This injustice is perpetrated and even increased by the tendency to regard all diabetics as a group of patients with identical characteristics. This is bound up with the mistake of failing to distinguish between mild cases and cases under proper medical control on the one hand and uncooperative, uncontrolled cases on the other. The Committee urged strongly that a much more liberal attitude of mind be adopted, which should aim at eliminating the discrimination against diabetics that has arisen simply on diagnostic grounds.

What Role Does Insurance Play in Employment and Placement Discrimination?

Because most New Jersey companies do not have a formal or written policy about hiring or placement of diabetic applicants -- or even an informal policy -- it is difficult to define the potential role of health insurance as a direct factor in discriminatory employment practices. It should be recognized that company health and accident insurance premiums are experience-rated. The New Jersey study concluded:

> most respondents -- and particularly the personnel people, who should be most knowledgeable in this area -- do not agree that hiring diabetic employees tends to result in increased insurance rates for a company. There are some, however, who say this is true. But on the whole, concern over impact of diabetic employees on company insurance rates does not appear to be a major limiting factor in the hiring of diabetics.

The specific responses to the statement: "hiring diabetic employees tends to result in increased insurance rates for a company" were:

RESPONDENT	RESPONSE		
	Generally True	Generally False	Undecided; No Opinion
Personnel Staff	16%	68%	16%
Medical Staff	12%	60%	28%

Related attitudes included the following:

1. Thirty-five percent of personnel staff and 27 percent of medical staff believe "there is risk of injury or accidents if (diabetics are) working with machinery or in a plant."

2. Thirty percent of personnel staff and 28 percent of medical staff believe "Diabetics are prone to dizziness or fainting or coma."

3. Thirteen percent of personnel staff and 16 percent of medical staff stated "Injuries to diabetics result in slow healing, infection: a diabetic, when he gets injured is pretty hard to heal"(7).

In the light of the above, it would appear that health and accident insurance rates may have, at least, an indirect effect on hiring practices, even in the absence of a formal or informal policy.

What Kind of Sickness - Absenteeism Record do Diabetics Have in Industry and How Well Do They Perform on the Job?

Pell and D'Alonzo in a study of 600 du Pont Company diabetic employees matched with a group of non-diabetic controls, found that the diabetic employees had more days of sickness absenteeism (666 sickness absences for diabetics, 467 for non-diabetics), although 92 percent of the absences were for non-diabetic illnesses, mainly respiratory infections and digestive disorders (8). A study of a Ford Motor Company plant also showed an increase in sickness absenteeism for all causes (9):

	DIABETICS		NON-DIABETICS	
	White	Negro	White	Negro
Average Days Absence Per Year	8.8	11.2	3.9	3.5

In a study of 90 diabetics at the New Jersey Standard Oil Company, diabetic employees averaged only one day per year more absence than

non-diabetics (16). In another New Jersey study of companies with approximately 180,000 employees, 90 percent of both personnel and medical department respondents agreed "that diabetics perform on the job as well as the typical non-diabetic employee." Approximately 80 percent of the respondents stated that attendance record of diabetic employees was as good as or better than that of average non-diabetic employees, but 25 percent found that diabetics "do not compare favorably to the average employee on length of absence when out sick"(7).

Cohen and Mastbaum surveyed 127 firms that employed 1,800,000 persons in Minnesota. They found that "only six percent of the firms reported" the reliability and absenteeism of diabetics unsatisfactory (10).

The National Health Interview Survey (7/64 - 6/65) showed sickness absenteeism due to diabetes averaged 2.8 days per year among currently employed diabetics (males 3.2 days, females 2.1) (12).

Entmacher, after reviewing a number of reports on the subject, concluded:

> these studies indicate that for the overwhelming majority of employed diabetics the quality of performance is high and that the record of absenteeism is favorable.

What is the Experience of Rehabilitation Services With Diabetics?

Inquiry of the New Jersey Rehabilitation Commission likewise indicated, in unpublished data, a remarkably low request rate for rehabilitation services by patients with diabetes.

In a report of the New York Diabetes Association Vocational and Counseling Service, the presenting problems were related to the age of the client (3):

AGE	PRESENTING PROBLEM	PERCENTAGE
10-19	Educational and Vocational Counseling	41%
	Social and Emotional Problems	32%
	Seeking Temporary Summer Employment	18%
	Seeking Steady Employment	6%
	Medical Care	3%
20+	Change of Job	63%
	Steady Employment	23%
	Vocational Counseling	7%
	Retraining	3%
	Medical Care and Financial Aid	2%

In a study among 2,525 registrants of the New Jersey Commission for the Blind, "a striking fact was the relatively high percentage of blind male diabetics registered between the ages of 25 and 34 years. This represents a catastrophe during a prime period of life, either before expression of maximum capabilities or well under the accepted "age of retirement" of 65 years. Almost two-thirds of the blind female diabetics were registered between the ages of 45 and 64 years, also representing a major family handicap. Early registration of blind diabetic males is probably a result of the loss of the family "bread-winner," with the need for financial assistance. It would appear likely that blind diabetic females would be registered later since a self-sufficient male would be more capable of providing care for his handicapped spouse"(11).

Are Employers Who Hire Diabetics Protected by Second Injury Laws? If Not, Is This a Discriminatory Factor?

As a result of the efforts of a committee appointed by President Kennedy, many states developed Second Injury Laws, including New Jersey (15). The purpose of the law was to protect the employer who hired the handicapped from being punished by excessive health and accident insurance premiums in the event of a second injury to such handicapped

persons with resultant permanent disability. The New Jersey law set up the Second Injury Fund, a so-called one percent fund, which received its revenues from the health and accident insurers who do business in New Jersey. These monies were matched by state contributions.

Unfortunately, diabetics are largely excluded from coverage by such Second Injury Laws on the basis that diabetes is, in and of itself, a progressive disorder which may lead to total disability without a second injury. This biased and narrow condemnation of all diabetics has literally excluded the diabetic from employment with the protection of Second Injury Laws as an incentive to potential employers.

What is the Experience of Disability Insurance Benefits Due to Diabetes?

The percentage of workers receiving disability benefits for diabetes under Social Security has remained amazingly constant. Worker disability allowances for diabetes averaged 2.5 percent of all causes during the period 1957 to 1963 (17).

Is There Evidence that Diabetics Are Directly or Indirectly Discriminated Against Through Career-Planning and Guidance, or Through Policies of Education and Training Institutions?

In a study of 35 schools of professional nursing and 20 schools of practical nursing in New Jersey, 16 percent of the 51 directors who responded indicated that the diagnosis of diabetes precluded acceptance of a candidate. Reasons given for not accepting candidates were: too many problems; danger to patients; susceptibility of diabetics to infection, fatigue and stress and difficulty in maintaining diabetes control. Although 41 respondents stated that diabetes would not necessarily bar a candidate from acceptance, conditions were set up which indicated a latent or overt reluctance to accept them. An ambivalent attitude was noted in that only 19 of the 55 nursing school directors approved of encouraging diabetic girls to enter nursing. Despite this reaction, the study disclosed that 66 diabetic girls were admitted to nursing schools in the decade prior to the study (13).

Evaluation of the New Jersey Rehabilitation Commission counseling to patients with diabetes in 1963 revealed miniscule evidence of any significant knowledge of interest in diabetes on the part of staff members and virtually no discernible services to patients with diabetes. The data were so scant as to be unreportable or interpretable.

It is most fortunate for the Stanley Cup-winning Philadelphia Flyers professional ice hockey team that Bobby Clark, an insulin-dependent growth-onset diabetic, was not advised by Professor V. Lachnit, Chief of Occupational Health at the University of Vienna. This author wrote:

It is not recommended for diabetics needing higher insulin doses or for unstable diabetics to participate in sport championships (14).

Lachnit went on to eliminate many other fields of endeavor for diabetics:

1. "Occupations in the candy industry are to be eliminated due to their psychic burden." Along with "other occupations, which are connected with higher food or beverage consumption."

2. "Professions with varying work time - like travelling agents, train personnel - and changing shiftwork are not recommended."

3. "Certain professions, which could endanger the patient or his surroundings or where handling of machines is not completely undangerous, should be prohibited."

4. Jobs in "transportation on streets or rails" should be prohibited.

5. Other professions to be avoided include "roofers, scaffolders, carpenters, chimney sweepers, high voltage repairmen, firemen, acrobats, etc."

6. "Piece work does not very well agree with the diabetic."

7. "Professions where they are frequently subject to an intensive stress, like executive personnel in economic and industry life, but also in politics, have an unfavorable effect"(14).

Contrary to this picture, Entmacher believes studies have shown that "the diabetic is capable of functioning well in high managerial positions, as well as in positions requiring manual labor"(17).

As to providing funds for payment of tuition and other educational help for diabetic students under state rehabilitation programs in New Jersey and Pennsylvania, this has been a rare occurrence in our experience.

What Role Does the Motor Vehicle Driver License Play in Job Discrimination?

Although issuance of a driver license to a patient with diabetes almost invariably depends on the physician's health certification, there is evidence of inconsistency. For example, the Pennsylvania Department of Motor Vehicles requires the physician of each applicant to answer the question: Does the patient have uncontrolled diabetes? If the physician says "yes," a license is not issued; if he says "no," a license is issued. There is no definition available to the physician

of "controlled" and "uncontrolled" diabetes from that state with the application.

Aside from issuance of a license a major problem exists when the diabetic is involved in a motor vehicle accident. In New Jersey, the driver license is immediately recalled and the driver must submit a "Physician's Report" to the Division of Motor Vehicles for evaluation by a panel of physicians. Until recently, the form specifically dealt with epilepsy and was only replaced when a special Physician's Report (Diabetic) was prepared. To this date, this same program requires the diabetic to submit a "Case History Statement" which includes such questions as:

> "The onset of my seizures, spells, blackouts was at _____ years of age.
>
> I am presently taking the following medicine to control my seizures, spells, blackouts.
>
> /__/ I have /__/ have not had an electroencephalograph examination (EEG, "brain wave" test)."

Even now, the panel members state they prefer "continued use of the D1-101 (form) in diabetic type cases" -- a form relating to epilepsy. This problem becomes especially acute when the diabetic requires a driver license to get to and from work or to perform his work.

Many officials believe that diabetics should not be permitted to drive commercial vehicles (trucks, buses), but they do not always discriminate between insulin-dependent and non-insulin-dependent diabetic patients. The Interstate Commerce Commission does not permit diabetics to drive trucks in interstate commerce (18).

The rules relating to piloting aircraft seem more sensible than some rules pertaining to motor vehicle driver license. Although the Federal Aviation Agency will not issue a medical certificate for a commercial or private flying license to diabetics who require insulin or oral hypoglycemic agents, they will issue a certificate to diet-controlled diabetics who do not have any significant complications (19).

Rules for the issuance of motor vehicle driver licenses appear to be getting more stringent for patients with diabetes and other chronic diseases. This pertains despite the plea of the WHO Expert Committee which "recommended that, except in (these) difficult circumstances, diabetic applicants, supported where necessary by a certificate from their physician, should be granted motor-vehicle driving permits"(6).

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SUMMARY

In summary, there appears to be ample evidence of discriminatory practices in employment, in the United States and Europe, which has been observed over the last decade or two. The WHO Expert Committee felt that diabetic patients should be evaluated as individuals and not by a label:

> Emphasis should be placed on the individual's aptitudes, experience, education, attainments, and physical condition, and not on his being diabetic (6).

The approach to this problem must be through education of

1. Employers, personnel, and medical departments in industry
2. Physicians
3. Government licensing agencies
4. Diabetic patients
5. Rehabilitation and counseling service personnel
6. Insurance industry personnel

REFERENCES

. Beardwood, J.T. Experiences of the Committee on Employment, The American Diabetes Association, Del. Med. Journal 34: 276-279, Oct. 1962.

. Wijnmalen, E.H.W. Diabetes and Work. A study of the place of diabetes in the labor pattern. Diabetes 9: 129-134, March-April 1960.

. Kantrow, A.H. Rehabilitation and placement of diabetics. Del. Med. Journal 34: 279-284, Oct. 1962.

. D'Alonzo, C.A. Ibid. p. 284-290.

. McGowan, F. Ibid. p. 293-295.

. WHO Expert Committee on Diabetes Mellitus: WHO Technical Report Series No. 310, Geneva, 1965.

. Krosnick, A. The Diabetic Employee in New Jersey Industry. Proc. XVI International Congress on Occupational Health. Tokyo, Japan, Sept. 1969.

8. Pell, S. and D'Alonzo, C.A. Sickness Absenteeism in Employed Diabetics. Am. J. Pub. Health 57: 253-260, February, 1967.

9. Nasr, A.N.M., Block, D.L., Magnuson, H.J. Absenteeism experience in a group of employed diabetics. J. Occup. Med. 8: 621-625, December, 1966.

10. Cohen, E.B. and Mastbaum, L. Employment for patients with diabetes. Minn. Med. 57: 241-244, March, 1974.

11. Krosnick, A. Visual loss, diabetes and other factors: A statistical evaluation among registrants of the New Jersey Commission for the Blind. Selected Papers from Symposia. N.J. State Dept. of Health. 1961.

12. Diabetes Source Book. U.S. Dept. HEW. PHS Pub. No. 1168, 1968, p. 49.

13. Harris, E.T. and Krosnick, A. Diabetes. A bar to nursing? Am. J. Nursing 65: 116, Sept., 1965.

14. Lachnit. V. The diabetic in professional life. Proc. XVI International Congress on Occupational Health. p. 736-738. Tokyo, Japan, Sept., 1969.

15. Kornblith, B.A. The protection provided by the Second-Injury Amendment as it relates to the diabetic. J. Occup. Med. 5: 246, May, 1963.

16. Weaver, N.K. and Perret, J.T. The diabetic in industry. Med. Bull. Standard Oil Co. (N.J.) and Affiliated Companies 18: 304, Nov., 1968.

17. Entmacher, P.S. and Marks, H.H. Socioeconomic considerations in the life of the diabetic in JOSLIN's Diabetes Mellitus. p. 789. Tea and Febiger, Philadelphia, 1971.

18. Editorial Comment. Year Book of Medicine, 1975. p. 626.

19. Federal Aviation Agency. Federal Aviation Regulations, Part 67. Medical Standards and Certification, 1966.

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APPENDIX 12

EVALUATION OF PATIENT EDUCATION: LOS ANGELES COUNTY HOSPITAL EXPERIENCE

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EVALUATION OF PATIENT EDUCATION: LOS ANGELES COUNTY HOSPITAL EXPERIENCE

Leona V. Miller, M.D.

The diabetes patient education program at the LAC-USC Medical Center focuses on two major aspects:

1) self-management of diabetes
2) communication with the health care delivery system

The purpose of (1) is to prepare the patient to care for himself to the greatest extent possible and the goal of (2) is to teach him to communicate with the health care system when self-care proves inadequate.

One measure of effectiveness of this education program is the extent to which preventable illness is reduced. We define preventable complications of diabetes that require hospitalization as follows:

1) diabetic ketoacidosis
2) hyperosmolar coma
3) insulin or oral agent reactions
4) diabetes out-of-control
5) diabetic foot problems

The hospitalization rates experienced by diabetic clinic patients are shown in Tables I and II. In these tables, we have defined a clinic patient as one who has been to the clinic at least once in the six months prior to hospitalization; a previous clinic patient as one who has visited the clinic in the prior two years but has not been seen for more than six months; and a non-clinic patient as one who has not been followed in our clinic for at least two years.

The effectiveness of our educational system is shown by the fact that very few of the patients regularly followed by our service are admitted for reasons related to poor education. Even though we still see these problems, they are occurring primarily in non-clinic patients.

It should be pointed out that our educational system is not limited to the instructions provided by Diabetes Nurse Clinical Practitioners in clinics and on the wards. There is additional back-up instruction provided by a "hot-line" phone service which the patient can use when he needs medical advice in the event his knowledge is inadequate to cope with a particular problem. The back-up for the "hot-line" is the 24-hour diabetic walk-in clinic. The availability of this walk-in clinic provides reassurance to the patient that professional help is available in the event he cannot cope with any medical problem.

To provide meaningful advice to patients telephoning in or coming unscheduled to the walk-in clinic we have found that it is essential that an up-to-date medical record be kept on hand on all diabetic clinic patients. Our information system is independent of hospital medical records and consists of a patient ledger where diagnosis, medications, laboratory and x-ray data are summarized. We are presently computerizing our records and feel that in diabetes centers dealing with large numbers of patients there will be a necessity for computerized records.

The importance of an education program integrated with the system of health care delivery cannot be overemphasized especially in terms of cost savings, Table III.

In 1968, prior to the introduction of the "hot-line" and walk-in clinic, the average clinic patient spent 5.6 days in the hospital. There were 670 admissions generated by each 1,000 clinic patients. The annual cost of hospitalization for each clinic patient averaged $438.76. By 1970, a year after the introduction of the "hot-line" and the walk-in clinic, average days spent in the hospital by clinic patients, rates of hospitalization and costs of hospitalization had all decreased. In the face of rising costs for hospital services, this trend continued unabated into 1973 (the last year for which analysis is available).

Table IV demonstrates the effectiveness of this in yet another way. In a five year span, from 1968 to 1973, while hospital costs were more than doubling, and our clinic population doubled, the cost of providing hospital care for all our patients in 1973 was only 41% of that required in 1968. The system had simply enabled us to reduce both rate of hospitalization and length of stay at a rate far greater than the rate of inflation.

If a system of health care delivery for diabetic patients could be implemented nationwide, integrating patient education, the results could be dramatic (see Table V). Consider that there are at least 4.0 million diabetics in this country who average 5.6 days of hospitalization annually. If this could be decreased to 1.2 days as it has on our service, the savings nationally would be almost four billion dollars a year. These savings would be in addition to the increased productivity of diabetic patients who have avoided hospitalization.

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TABLE I

NUMBER OF ADMISSION DUE TO POOR CONTROL OF DIABETES

	CLINIC PATIENT		PREVIOUS CLINIC PATIENTS		NON-CLINIC PATIENTS	
	1972	1973	1972	1973	1972	1973
Diabetic Coma	2	12	9	10	66	68
Hyperosmolar Coma	1	1	1	1	20	25
Insulin Reaction	10	19	7	16	47	45
Oral Agent Reaction	2	6	1	2	16	22
Diabetes Out of Control	28	39	35	52	213	141

TABLE II

NUMBER OF ADMISSIONS DUE TO FOOT PROBLEMS

	CLINIC PATIENTS		PREVIOUS CLINIC PATIENTS		NON-CLINIC PATIENTS	
	1972	1973	1972	1973	1972	1973
Ulcers	14	16	6	7	57	47
Gangrene	9	6	2	2	35	28
Cellulitis	9	17	4	7	49	36
Infection	5	15	4	4	56	27
Osteomyelitis	2	3	3	4	22	25
Number of Patients Seen in Clinic	3181	2909				

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TABLE III

INCIDENCE AND COST OF HOSPITAL CARE FOR DIABETES CLINIC POPULATION AT LAC-USC MEDICAL CENTER

	HOSPITAL DISCHARGE PER 1,000 PATIENT	AVERAGE HOSPITAL DAY PER CLINIC PATIENT	AVERAGE COST OF HOSPITALIZATION PER CLINIC PATIENT (DAILY RATES)
1968	670	5.6	$438.76 (78.35)
1970	208	1.74	$261.00 (128.90)
1972	130	.82	$124.64 (152.00)
1973	180	1.25	$230.00 (184.00)

TABLE IV

TOTAL COSTS OF HOSPITALIZATION OF DIABETES CLINIC PATIENTS AT LAC-USC MEDICAL CENTER

	NO. OF CLINIC PATIENTS HOSPITALIZED	AVERAGE LENGTH OF HOSPITAL STAY - DAYS	AVERAGE COST OF HOSPITALIZATION DOLLARS	TOTAL HOSPITAL COST DIABETES CLINIC PATIENTS DOLLARS X 10^6
1968	2600*	8.3	650 (78.35)	1.69
1970	1250	8.3	1069 (128.90)	1.34
1972	356	6.6	1003 (152.00)	.36
1973	495	7.0	1288 (184.00)	.64

* If this number of patients admitted had persisted into 1974, total cost of hospitalizing diabetic clinic patients would have risen to $4.83 million.

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TABLE V

COST EFFECTIVENESS

	AVG. DAYS OF HOSP. ANNUALLY	DAILY COST	AVG. ANNUAL COST	AVG. ANNUAL SAVING PER PT.	AVG. ANNUAL SAVING - NATIONWIDE
Present System	5.4*	$224	$1210	--	--
Improved System	1.2**	224	269	$941	$3.76 x 10^9

* From "Characteristics of Persons with Diabetes" compiled by United States Center for Health Statistics, 1967.

** From statistics compiled by the Diabetes Service at the Los Angeles County - USC Medical Center.

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APPENDIX 13

SETTING UP TEACHING PROGRAMS FOR EDUCATING

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SETTING UP TEACHING PROGRAMS FOR EDUCATING

Bernard R. Landau, Ph.D., M.D.

The experience of the Diabetes Association of Greater Cleveland in developing a teaching program for diabetics is to be used to illustrate a method for providing for the education of diabetics in a large urban center:

A survey of 34 hospitals in the Greater Cleveland area indicated a wide range of approaches (or lack thereof) superimposed. There were duplications of effort and financial limitations in the providing of inpatient and outpatient educational opportunities for diabetics. A symposium and workshops directed by professional and allied health personnel experienced in educating the diabetic were organized. Attending were hundreds of allied health personnel and physicians in the community who indicated, in response to the announcement of the presentations, an interest in approaches to educating the diabetic. These individuals at the workshops told of some of the successes and the obstacles they had encountered in their own attempts to develop educational programs in their institutions, and their desire for more effective methods within the community. The decision was made by the Association to aim toward group education, developing a program adaptable to the needs of patients differing in schooling and intelligence and economic levels.

Teaching material used by the institutions was assembled and a compendium was made of much of the material available throughout the country for the education of the diabetic, and certain items were selected for the program. The points in the education that were believed most important to make, as defined by a representation of physicians and allied health personnel, were incorporated into a series of sessions utilizing the selected visual aids. Additional selected written material was provided and alternatives to this material, dependent upon patients' particular needs, were included. Inexpensive booklets were prepared for the patients to use in an effort to help them retain the material. These teaching materials for the program were then assembled in an easily portable "Kit" and a run of the booklets printed.

The Kit was next presented to a group of allied health professionals at one of the hospitals that had been surveyed. At the sessions the teaching materials were distributed and methods for utilizing them were introduced. Trial teaching sessions were then held for a group of diabetics assembled through newspaper announcements and clinic posters. The sessions were given by those who had assembled the Kit, and other professionals attended to see the methods employed. The completed teaching program benefitted by modification based upon these experiences.

The teaching program was next introduced to the allied health personnel and physicians in the community at a second symposium and workshops. Those in the hospitals who, through the survey, were known to be primarily responsible for education of the diabetics in the hospitals and who had indicated a particular interest in the development of a program to be tried in their institutions, were offered the Kit and assistance in its use. The Kit was provided only after those at the institution provided an acceptable proposal for its use and the use of the booklets within the organization of their institutions.

To reach a greater number of newly-diagnosed diabetics, all those individuals screening "positive" in the Greater Cleveland Diabetes Detection Program are now being invited to teaching sessions at the Association's office. These sessions are open to any diabetic patient and his or her family wanting to attend, as well as other persons interested in increasing their knowledge and understanding of the disease. These sessions, initially being given by those who developed the program, are being taped, and postgraduate trainees and students in the professions and lay persons are being trained to help direct these sessions (using their attendance at the sessions and tapes to strengthen their training). Sessions are to be held at other sites in the city (both afternoon and evening sessions) as well as at the Summer Camp for Diabetics. Cleveland medical students are receiving sessions on how to educate the diabetic based upon these experiences, first being introduced to problems in education of the diabetic through presentation of patients.

Despite reasonable progress, the large number of diabetics, their diversity, and in particular the need for their continuing education and reinforcement could overwhelm the capacity of such a system, and it remains much less than optimal. Future plans are to adapt the program to audio-visual tapes that can be transmitted to all the hospitals in the area through educational television. Patient sessions can then be scheduled to run simultaneously at the several institutions with health professionals available at each hospital to respond to questions and provide clarification and modifications when appropriate. While a questionnaire has been developed to assess the additional knowledge gained by the patients and to test their retention, methods for evaluating the effectiveness of the program in terms of health benefit are yet to be introduced. Approaches to accomplishing this are being developed.

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APPENDIX 14

THE ROLE OF THE ALLIED HEALTH PROFESSIONAL IN THE TEACHING OF THE DIABETIC

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THE ROLE OF THE ALLIED HEALTH PROFESSIONAL IN THE TEACHING OF THE DIABETIC

Diana W. Guthrie, R.N., M.S.P.H., F.A.A.N.

The allied health professional, be he or she a nurse, dietician, social worker, physical therapist, or otherwise, is an integral part of the health care team. Each of the health professionals, other than nursing, has specific input into patient care.

The dietician is responsible for taking a nutrition history and teaching basic meal planning. Through her skills, she determines dietary needs, ability to follow a meal plan and specific life style in relation to eating habits. She can then feed back into the team as to dietary needs and dietary planning.

The social worker makes a social evaluation of the patient and his family to determine: (1) stability of the family, (2) the development, both physical and emotional, and (3) to anticipate problems in this family. This function is best carried out by the social worker working with a team. The team is composed of a primary care physician, a nurse, a dietician and a social worker who can take a social history; to provide direct input to housestaff and students about the patient and his family. The social worker relates to the emotional aspects of diabetes by using the interviews with the patients and their families and case illustrations and to try to work with the whole team to promote the overall goal to provide emotional support to the patient and his family in a way that will facilitate healthy psychosocial functioning and good diabetic control.

Physical therapist may participate in following out the physician request for specific treatment of chronic complications. Even better, the physical therapist helps to maintain the level of exercise the client experiences outside the hospital setting so that transfer from hospital to home will be less abrupt.

The podiatrist assists in determining the needs of the patient in relation to his feet. He may assist in recommendations, from his knowledge, for preventive care as well as treatment for medical problems.

The occupational therapist may also have a role in getting a person's mind off his chronic condition and possibly help develop a hobby interest in the chronically ill person.

The nurse has the most variable role. This variable role is caused by varying degrees of education and preparation as the nurse has tried

to fulfill various needs in the total health plan of both the ill and well individual.

So that we may all discuss the nurse's role on the same plane, the following definitions (1), with quotations adapted from the ANA Congress for Nursing Practice 1974, are offered:

Nurse Practitioner - a graduate of a diploma or degree program, educated in special areas of patient care by continuing education. "This is a nurse...with advanced skills in assessment of the physical and psychosocial health-illness status, through the taking of a health and developmental history and physical examination."

Nurse Clinician - a graduate of a degree program with specific background in physical assessment and history and, in this instance, further training in a specialty area through clinical practice, classes, conferences, seminars, and workshops at both formal and informal levels. "This is a nurse who can utilize a broad range of cues or knowledge to prescribe and implement nursing care and to coordinate nursing therapy with other planned therapy."

Nurse Specialist - a masters degree nurse with an emphasis in clinical nursing, specifically educated in aspects of patient care and education, physical assessment and history, assists in and with a high degree of competence, skill and knowledge, and guidance and planning of care of patients with diabetes.

Simonds (2) defines the role of the allied health person as the diabetes instructor and the diabetes educator. His description of the diabetes instructor closely fits that of the role of a nurse practitioner while the diabetes educator has the education and skill of the nurse clinician with perhaps the omission of history and physical assessment training.

The diabetes teaching nurse is also a term frequently used. In the Joslin setting, the nurse is skilled in dietary knowledge, as well as nursing care and education, as may be the diabetes nurse specialist and some clinicians and practitioners.

The diabetes nurse specialist (3) may function in a variety of roles. This might be as a nurse consultant if she is involved in assisting various hospitals, nursing homes, schools of nursing, etc., in developing programs, training personnel and in improving patient care and education. A diabetes nurse specialist would also easily fill the role as an educator of the nurse wishing to specialize in total diabetic nursing management.

Historically, the diabetes teaching nurse was first found in Dr. Joslin's program in Massachusetts. This nurse joined the family in their

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home after initial contact in the hospital setting. She lived with the family until she was sure the family and patient were able to cope with the care of the patient or the patient in his self care.

Dr. Robert Jackson early recognized the need of the allied health care team as he, then at the University of Iowa and on to the University of Missouri, combined the skills of the dietician, nurse educator, and social worker in the overall planning, care and education of the patient with diabetes and his family. A few others recognized the role of the health care team in these early years but with these few exceptions, the team concept is a product of recent times, especially since Regional Medical Program funding began.

Numbered among the original Regional Medical Program Grants were the programs of the Diabetic Education Centers in Minneapolis. Here, as well as at Joslin, the nurse as well as other allied health personnel, including physicians, could spend a week of education and observation. In North Carolina, the Regional Medical Program was involved in training diabetes nurse educators to return to communities and eventually be financially supported by a variety of ways, from community health nursing services to hospitals, to a group of physicians.

The community health nurse who specializes in diabetes, such as those found in South Carolina, visits in the home and holds group classes in terms of the understanding of those with whom she is working. She is a person who educates patients and encourages patients to follow through with the management prescribed by the physicians.

In a physician's office or a group practice setting, such as is found in Gainesville, Florida, the nurse screens, educates and coordinates the care of patients with diabetes (4). She is responsible for the chronic care of the patient which also consists of minor management and follow up of her patients. The patient with the possible or actual case of diabetes is scheduled to her clinic. She completes the history, requests the specific laboratory tests and prepares the patient for the physician's visit. After assessment by the physician, she follows up by appropriate education and care. If the case is acute, the physician manages the patient until that point at which the patient is out of the acute stage.

The nurse in the hospital is found in a variety of settings. His/her initial role is at the bedside of the acutely ill patient, especially the first 24 to 48 hours. This often involves the monitoring of the ECG machine readings as well as observing and maintaining the IV fluid rate, testing output and vital signs. In such a setting as found in the United Hospital, Inc., in Minneapolis, Minnesota, the patient is reviewed in conference after initial assessment is made by questionnaire, interview and physical examination. The team coordinates all aspects of care and education. The team determines the basic management

and education as well as other needs of the patient. Before discharge, the patient is reassessed and referred to appropriate community resources.

At the University of Missouri, programs for adults and children are handled by nurses in two ways. The diabetes nurse practitioner receives consults from the physician or nurse. She follows through by one-to-one education and group classes until the adult is discharged. She then sees the patient as he returns to the clinic. The pediatric diabetes nurse coordinates the education and other contacts with dietary and welfare. She participates in weekly team conferences and instructs most families and children on a one-to-one basis. She then follows them in clinic after making the appropriate referrals to the consultants of Maternal and Child Health in the State of Missouri.

At Grady Memorial Hospital, the nurse sees the patient at three levels: in the hospital, in the nurses' clinic, and in the day care center. In each one of these the nurse fulfills specific roles from direct observation in the hospital to totally involved care and education in the day care centers.

So, from these examples we can see the nurse as an observer, a manager, an educator and a coordinator. Some might view some of these roles as a threat to the physician but in reality this professional plays a valuable part in assisting in quality patient care (5). She frees the physicians for acute care management and other areas such as research. She, or he, is available for the myriad of questions and answers that can support the patient and his family during the throes of this chronic disease. She coordinates the use of community resources so that service of voluntary health organizations, community health services and welfare organizations may be a total part of the total care as needed. Minor management by the nurse is in question by many professionals but as more programs of patient education are developed and information related to teaching patients minor variations of insulin and diet is included, the nurse in minor management is found to be just reinforcing or reinstructing this area of education (6).

The future of the allied health professional is expanding. As the physician and other professionals are able to recognize the skills each member of the team has to offer, with coordination of these skills, the patient may benefit in the optimum level of continuing health care.

RECOMMENDATIONS:

1. Development of a specific education program for allied health personnel working with patients with diabetes.

2. Certification of allied health personnel Statewide and/or Nationally as to competency in this field.
(To look into the development of an accrediting examination, in line with the new program of the American Nurses Association, specific to diabetes.)

3. Representation on national and local boards of accreditation, such as National League for Nursing, in order to update questions included on national and state board examinations.

4. Development of a nurse specialist on the master's level as a consultant to and educator of other nurse practitioners and clinicians.

5. Development of a nutritional specialist on the master's level as a consultant to and educator of other dietary personnel working with diabetic patients.

6. Choice and standardization of job descriptions of educational and supportive personnel (i.e. Diabetes Nurse Specialist, Diabetes Teaching Nurse, Diabetes Educator, Diabetes Nutritionist, Diabetes Medical Social Worker, etc.).

7. Development of an on-going accreditation, through continuing education programs, for allied health personnel.

REFERENCES

1. ANA Congress for Nursing Practice, 1974, "Definitions." Kansas City, Missouri: American Nurses Association.

2. Simonds, Scott K., "Educating the Diabetes Educator," accepted for publication by the American Diabetes Association.

3. Guthrie, Diana W., "Why Not Become a Diabetes Nurse Specialist?" Nursing 75, February, 1975, pp. 85-87.

4. Ciske, Karen. "Primary Nursing: An Organization that Promotes Professional Practice." The Journal of Nursing Administration.

5. Backscheider, Joan, E. "Self Care Requirements, Self Care Capabilities, and Nursing Systems in the Diabetic Nurse Management Clinic." Amer. J. Pub. Health 64: 12, pp. 1138-1148, 1974.

6. Etzwiler, D.D. "Education and Management of the Patient With Diabetes Mellitus." Elkhart, Ind., Ames Company, Division of Miles Laboratories, Inc., p. 1, 1973.

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APPENDIX 15

THE NEED FOR DIABETES EDUCATION

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THE NEED FOR DIABETES EDUCATION

T. Franklin Williams, M.D.

This presentation concerns the need for diabetes education for the diabetic patient. A fact so obvious that it is often forgotten is that the person with diabetes mellitus (or his family) plays the key role in managing his own disease. In this more than almost any other disease, proper therapy consists of day-by-day, even hour-by-hour, attention to and balancing of two of the most basic aspects of living: food and physical activity. To this is added the importance of careful daily care of the skin (especially the feet), daily or more frequent administration of insulin or oral drugs for many patients, testing of the urine, and the ability to be aware of and to deal with the emergencies of ketoacidosis or hypoglycemia. What goes on in all of these essential aspects of diabetic therapy depends almost entirely upon the patient and/or his family.

The physician, nurse and nutritionist, by contrast, have only relatively brief, periodic or episodic opportunities to influence the nature of the ongoing management of a patient's diabetes -- a fraction of one percent of the diabetic person's waking hours.

Thus it is clear that the person with diabetes must be his own primary therapist, and that the health professionals who are trying to help should concentrate much of their efforts on helping him learn how best to manage his own diseases, i.e., on education of the patient.

What the diabetic person needs to learn is well established and need not be dwelt upon here. This may be summarized by stating that he needs to know, first, about the disease process itself, in order to understand the need for and nature of treatment; and second, he needs to know how to manage the various elements of his treatment.

Despite these clear needs for education, all available evidence points to far less than satisfactory accomplishments, and gives cause for concern that we must become more effective in these efforts.

To summarize this evidence: first, tests of knowledge about diabetes, dealing with material any diabetic patient or parent of a diabetic child might be expected to know, have all indicated large gaps in knowledge (Alogna, 1974; Beaser, 1956; Bolt and Miller, 1967; Christman, 1974; Collier and Etzwiler, 1971; Etzwiler, 1962, 1967; Etzwiler et al., 1972; McDonald, 1968; Stone, 1961; Williams et al., 1967a). Secondly, studies through actual observation of diabetic patients' performance of recommended measures of treatment, as an

indication of what they know about how to manage their disease as well as commitment or motivation to carrying out the regimen have shown that:

> 65 to 90% of patients studied had major deficiencies in the types of foods selected, in proper spacing of meals or snacks, and/or in regularity of diet;
>
> Among patients on insulin, three out of five made errors including incorrect dosage compared to the physician's prescription and errors in measurement, with frequency of medication errors increasing with the duration of diabetes thus emphasizing the importance of continuing educational efforts;
>
> Among patients taking oral hypoglycemic agents, one in four was omitting doses weekly or more often;
>
> Three out of four patients studied did not test or record their urines, or made errors in doing or reading the test such that their information would actually have been misleading to physician or nurse;
>
> Half the patients did not carry out acceptable foot care (Williams et al., 1967b; Watkins et al., 1967a, b; Watkins and Moss, 1969).

Overall, less than 10% of the patients observed were carrying out a minimally adequate regimen in all of these areas of day-to-day management of their diabetes.

A number of things help account for these poor results in educating and motivating diabetic patients. First, relatively little effort is invested in diabetic education. Dr. Etzwiler (1967, 1973b) has reported the low percentages of hospitals which have any formal educational programs for patients, or even have fully trained dieticians. Dr. Colwell will no doubt summarize before you further evidence of the few settings or centers in this Country for diabetes patient education.

Secondly, the physicians, nurses and dieticians who should be teaching diabetic patients in their various contacts with them are often less than adequately informed about diabetes themselves. Dr. Etzwiler (1967) found large gaps in basic knowledge about diabetes among senior nursing students, with less than half possessing a basic understanding of diabetic dietary principles, and physicians often apparently unaware of the correct follow-up needed for elevated blood sugars in diabetes detection drives. Supporting evidence from abroad is that of Trinca and Rowe (1970) who found among Australian physicians that one-fourth to one-half gave poor responses to four of seven basic questions about diabetes.

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Thirdly, health professionals working with diabetic patients often do not know enough about what the patient is actually doing and thus teach inefficiently. In addition, patients' priorities may differ from the priorities of the health professional team members (Patient Care, 1973).

Fourthly, the characteristics of diabetes itself tend to work against continuing motivation to learn: for the juvenile-onset, often "brittle", diabetic, no matter how much he learns his diabetes is often still a problem whereas for the adult onset, usually "mild" and "stable" diabetic, relatively minimal measures of management are usually sufficient to eliminate any symptoms related to his disease with the result that the patient may wonder why bother more?

Finally in terms of causes for poor diabetic education is the inadequacy in types and availability of teaching materials on diabetes, and inadequate knowledge among professionals about what materials are available. In particular, there are too few materials for the non-reading or poorly reading patient and for those with languages other than English.

What approaches may be suggested for doing a better job in diabetes education for the diabetic patient?

First, there clearly needs to be more attention to and preparation for educating diabetic patients by physicians, nurses, and nutritionists, in all types of settings in which such education can and should go on. It is essential that health professionals become prepared themselves to teach the patients and that they have suitable materials to assist them. As what is hoped will be a significant further step in this direction, the Committee on Patient Education Centers and Systems of the American Diabetes Association is sponsoring the preparation of a "Handbook on the Education of the Diabetic Patient" by experts in this field in the United States and Canada.

Second, it is important that planned, systematic diabetes patient education be expected and indeed required to be available in all settings in which primary responsibility for care of diabetic patients is assumed, and that patients be expected to participate in the educational activity. The American Diabetes Association supports the view that patient education should be included as part of the regular audit in hospitals and other comprehensive health services (health maintenance organizations and others), that patient education should be recognized as a reimbursable cost of health care, and that standards for patient education programs should be developed.

Third, in the conduct of diabetes patient education, certain principles should be followed, including the following:

(1) Assessment of the patient's current level of knowledge and accuracy in carrying out prescribed measures. This is fundamental to undertaking further useful education.

(2) Determination of the individual needs and preferences of each patient, in particular in terms of necessary or desired daily activities, food preferences, and other aspects of the person's and his family's life style to which the necessary diabetic regimen should be fitted with no more than essential changes in basic life patterns.

(3) Consideration should be given to the "contract" approach between health team teachers and the patient about the responsibilities each is undertaking in accomplishing the educational goals (Etzwiler, 1973a; Educational Management of the Patient with Diabetes Mellitus, 1973).

(4) Undertaking changes in small steps, one or a few at a time.

(5) Undertaking the teaching efforts as a team approach involving physician, diabetes nurse specialist, and nutritionist or dietician.

(6) The importance of an ongoing educational program in the context of a continuing relationship with the patient and family. This is not to underestimate the value of initial and periodic intensive organized courses in diabetes. However, studies with diabetic patients and in other learning settings show rapid decline in information retained and in adherence to therapeutic plans after such isolated educational experiences, and it has also been shown that there are significant positive correlations between better performance of prescribed measures and diabetes teaching in a continuing relationship, as well as better performance by patients who are satisfied with their physicians' and families' continuing understanding and assistance (Williams, 1967a; Roberts, 1966).

This Commission should make the development of more effective and universally available education for diabetic patients and their families a major priority in its national program. Without this, until there is a simple and complete cure for diabetes mellitus, other efforts towards understanding and treating the disease will, by themselves, be largely wasted.

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REFERENCES

1. Alogna, M. "The Grady Hospital -- Emory University School of Medicine Experience." Presented at Symposium on "Evaluation of Diabetes Educational Programs." American Diabetes Association, 20th Post-graduate Course, San Francisco, January 21, 1974.

2. Beaser, S.R. Teaching the Diabetic Patient. Diabetes. 5: 146-9, 1956.

3. Bolt, W.M. and Miller, E.C. Education of the Diabetic Patient -- Physician's Dilemma. North Carolina Med. J. 28: 1-6, 1967.

4. Christman, B. "The Vanderbilt University School of Medicine Experience." Presented at Symposium on "Evaluation of Diabetes Education Programs." American Diabetes Association, 20th Post-graduate Course, San Francisco, January 21, 1974.

5. Collier, B. and Etzwiler, D.D. Comparative Study of Diabetes Knowledge Among Juvenile Diabetics and Their Parents. Diabetes. 20: 51, 1971.

6. Education and Management of the Patient with Diabetes Mellitus. Ames Co., Elkhart, Indiana, 1973.

7. Etzwiler, D.D. The Contract for Health Care. (Editorial) JAMA. 224: 1034, 1973a.

8. Etzwiler, D.D. Current Status of Patient Education. (Editorial) JAMA. 220: 583, 1973b.

9. Etzwiler, D.D. and Sines, L.K. Juvenile Diabetes and Its Management: Family, Social and Academic Implications. JAMA 181: 304-8, 1962.

10. Etzwiler, D.D. Who's Teaching the Diabetic? Diabetes. 16: 111-7, 1967.

11. Etzwiler, D.D. What the Juvenile Diabetic Knows About His Disease. Pediatrics. 29: 135-41, 1962.

12. Etzwiler, D.D., Tyrell, M., Ulrich, M., Wright, J., and Hirsch, A. Patient Education in Community Hospitals. Minnesota Med. December, 1972, pp. 33-7.

13. McDonald, G.W. Diabetes Supplement of the National Health Survey. J. Am. Diet. Assn. 52: 118-24, 1968.

14. Patient Roundtable: Diabetes as Patients See It. Patient Care. 7: 21-75, March 15, 1973.

15. Roberts, D.E. Social Roles and Disease Control. Ph.D. Thesis, University of North Carolina, Chapel Hill, 1966.

16. Stone, D.B. A Study of the Incidence and Causes of Poor Control in Patients with Diabetes Mellitus. Am. J. Med. Sci. 241: 64-9, 1961.

17. Trinca, J.C. and Rowe, I.L. Evaluation of Medical Education Programme. Diabetes Mellitus Telecast, 1968.

18. Watkins, J.D., Williams, T.F., Hogan, M.D. and Anderson, E. A Study of Diabetic Patients at Home. Am. J. Pub. Health. 57: 452-9, 1967a.

19. Watkins, J.D., Roberts, D.E., Williams, T.F., Martin, D.A. and Coyle, V. Observation of Medication Errors Made by Diabetic Patients in the Home. Diabetes. 16: 882-5, 1967b.

20. Watkins, J.D. and Moss, F.T. Confusion in the Management of Diabetes. Am. J. Nursing. 69: 521-4, 1969.

21. Williams, T.F., Martin, D.A., Hogan, M.D., Watkins, J.D. and Ellis, J.V. The Clinical Picture of Diabetic Control, Studied in Four Settings. Am. J. Pub. Health. 57: 441-51, 1967a.

22. Williams, T.F., Anderson, E., Watkins, J.D., and Coyle, V. Dietary Errors Made at Home by Patients with Diabetes. J. Am. Diet. Assn. 51: 19-25, 1967b.

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APPENDIX 16

THE NEED FOR AN EDUCATION PROGRAM IN PRIVATE, PUBLIC, AND COMMUNITY SECTORS

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THE NEED FOR AN EDUCATION PROGRAM IN PRIVATE, PUBLIC, AND COMMUNITY SECTORS

John K. Davidson, M.D., Ph.D.

The Subcommittee on Education and Treatment of the National Diabetes Commission has prepared an outline which includes its goals, specific objectives, and background information needed to formulate a long-range plan. This outline confirms my suspicions that the process of educating and treating the diabetic patient is complex at best.

In PL 93-354, the National Diabetes Mellitus Research and Education Act, the need for education programs for scientists, clinicians, allied health professionals, educators, and the public is recognized. Plans for implementing such activities through Diabetes Research and Training Centers on a nation-wide basis are outlined. If such programs are to evolve in an optimal cost-effective fashion, we must have a clear understanding of the problems with which we must deal, and we must develop an overall strategy of ongoing effective communication between the private, public, and community sectors, all of whom have an interest in at least one aspect of diabetes.

There is obvious overlap in the interests of these three sectors. In order to simplify this presentation, I have chosen to define (1) the private sector as patients, physicians, and allied health professionals, (2) public sector as federal, state, and local governments, and public health departments, hospitals, and medical schools, and (3) the community sector as the American Diabetes Association and its affiliate, the Juvenile Diabetes Foundation and its affiliates, diabetes camps, and other interested voluntary health agencies and individuals. The private sector consists of patients and their families and the professionals who deal with them on a personal basis; the other two sectors provide money, personnel, and facilities to help solve the problems that diabetes creates for those in the private sector. If educational activities are to succeed, effective communication must be continuous between the three sectors.

A preliminary survey of Georgia, Florida, Alabama, North Carolina, and South Carolina indicates that educational activities have been started in scattered hospitals and communities in the last few years with support from Regional Medical Programs, State health departments, and some hospitals. Affiliates of the American Diabetes Association and camps for diabetic children have also engaged in some educational activities. However, these activities represent just the beginning of a long effort, and the overall picture still indicates that over 90% of the known diabetics, and of course 100% of the undiagnosed diabetics

have been insufficiently educated concerning the nature and treatment of the disease and its complications.

When one considers the magnitude of the effort that is necessary to optimally educate over five million diagnosed diabetics and to detect and educate over three million undiagnosed diabetics, it is clear that neither the number of trained personnel, nor adequate facilities, nor satisfactory teaching material are presently available to accomplish the task. For example, much of the unsatisfactory teaching that is now being done concerning diet therapy of diabetes can be blamed on continued use of unattractive printed material that has been therapeutically outdated for over twenty years. There is great need of attractive modern publications that address themselves not only to the needs of English-speaking literate individuals, but also to the needs of non-English speaking and illiterate individuals. I hope that the Commission will encourage the production of a great deal of high-quality teaching material including books, TV tapes, slides, and other materials.

Education cannot be effective if it is not coordinated with continuing access to quality medical care. If outpatient hospital facilities are more adequately financed, the quality of patient education can be significantly improved. Yet, it should be recognized that not all educated patients modify their life styles so that the disease is satisfactorily controlled. Therefore, we need more knowledge concerning what motivates patients to favorably alter their modes of living.

A brief summary of some of the things that we have learned in our educational activities for patients and professionals at Grady Memorial Hospital over the last five years will be presented.

I want to thank the members of the Commission for the opportunity to appear before you and to give this presentation.

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IX. PROJECT SUMMARY SHEETS

PATIENT EDUCATION

PROJECT SUMMARY SHEET -- 1

PROJECT TITLE: TEACHING THE NEWLY-DIAGNOSED DIABETIC PATIENT

OBJECTIVE: To provide the newly-diagnosed diabetic with an effective teaching program.

APPROACH TITLE:

Development of individualized, coordinated teaching programs with individualized, tailored teaching materials for newly-diagnosed diabetics.

DESCRIPTION OF PROJECT:

Develop teaching programs for newly-diagnosed diabetics which include guidelines for content, use of team approach, utilization of educational materials appropriate for insulin dependence, age, special ethnic needs, etc., and provision for social-emotional support.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Development of teaching materials tailored to individual needs of the diabetic, taking into consideration insulin dependence, age, special ethnic needs, educational level, etc.
2. Encourage a coordinated approach of appropriate personnel.
3. Develop individualized coordinated training programs to be available to all newly-diagnosed diabetics.
4. Identify the social-emotional problems attendant to being diagnosed a diabetic. Provide an opportunity for an initial dialogue of the emotional aspects accompanying the onset of diabetes.

PRESENT STATUS:

Most physicians and hospitals who provide initial care to newly-diagnosed diabetics are "crisis" oriented and either have no plans, expertise or time for patient education. Consequently most newly-diagnosed diabetics receive inadequate initial instruction.

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INPUT REQUIRED:

Committee consideration of minimal standards or guidelines for education of newly-diagnosed diabetics.

Project development of appropriate teaching materials.

Coordination of individualized training programs at regional level.

FORM OF RESULTS:

Guidelines (standards) for education of newly-diagnosed diabetics.

Training of newly-diagnosed diabetic in skills or knowledge necessary to achieve initial self-care.

Emotional-social support to newly-diagnosed diabetic.

PROJECT SUMMARY SHEET -- 2

PROJECT TITLE: EDUCATION AND TRAINING OF THE DIABETIC PATIENT FOR HOME MANAGEMENT OF DIABETES

OBJECTIVE: To develop and implement an educational program of home management of diabetes emphasizing self care and providing opportunity for continuing emotional support.

APPROACH TITLE:

Establishment of centers for diabetes education for development and implementation of home management of diabetes appropriate for any diabetic with provision for continuing education and evaluation.

DESCRIPTION OF PROJECT:

Establish centers for diabetes education to coordinate and develop programs for education of diabetic in home management of diabetes. Development of provision of educational experiences appropriate to individual needs of diabetic. Provision of continuing educational programs and evaluation of effectiveness of educational approaches.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Establishment of centers for diabetes education training according to geographical and population density.
2. Development within centers of a flexible, comprehensive, homophillous program for any age, language, ethnic group, or learning ability.
3. Establishment of satellite teaching clinics in hospitals and clinics, etc. to be staffed by appropriately trained personnel.
4. Provision of continuing education and evaluation, and ease of communication between health professional and patients.
5. Providing experiences designed to assist in adjustment in problems of living with diabetes appropriate to age, social, emotional, or ethnic variables.

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PRESENT STATUS:

Comprehensive, coordinated home management educational programs are scarce and most diabetics do not receive such comprehensive education for a variety of reasons.

INPUT REQUIRED:

Committee establishment of standards and guidelines for home management of diabetes.

Establishment of centers for diabetes education and training.

Development of appropriate educational materials.

Establishment of satellite clinics.

FORM OF RESULTS:

Standards and guidelines for programs of home management.

Centers for diabetes education and training.

Satellite clinics for delivery of appropriate educational programs of home management.

Clearing house for educational materials for any age, language, ethnic group or learning ability.

PROJECT SUMMARY SHEET -- 3

PROJECT TITLE: SOCIAL-EMOTIONAL SUPPORT OF DIABETICS

OBJECTIVE: To develop and implement programs designed to support the social-emotional needs of diabetics and their families.

APPROACH TITLE:

Development of programs to assist diabetic in adjusting to problems of living with diabetes including education of health care providers and mental health personnel to social-emotional needs of diabetics.

DESCRIPTION OF PROJECT:

Develop educational programs which recognize social-emotional needs of diabetic, and family, designed to facilitate adjustment to living with diabetes. Coordinate social-emotional counseling agencies and provide educational programs for counselors and health providers to provide for social-emotional needs of the diabetic.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Providing experiences designed to assist in the adjustment of problems in living with diabetes appropriate to age, social, emotional, educational, or ethnic needs.
2. Training of mental health personnel in the understanding of diabetes.
3. Education of health care providers responsible for diabetic care in social-emotional needs of diabetic.
4. Provision of regional community/state Diabetes Advisory Council to provide liaison between Diabetic Health Care Providers, mental health personnel, community, and health agencies and utilization of their resources.

PRESENT STATUS:

The life style of the diabetic is frequently curtailed by lack of understanding of the nature of the disease. Social-emotional needs

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of the diabetic are frequently overlooked in our crisis-oriented therapy programs.

INPUT REQUIRED:

Center-supervised programs designed to assist the diabetic in adjustment to living with diabetes.

Center-training programs for health care providers and mental health personnel in social-emotional needs of diabetics.

Establishment of regional coordinating body to provide liaison between health care providers and social health agencies.

FORM OF RESULTS:

Program for helping diabetics adjust to their disease.

Educational programs for health providers of mental health counselors in social-emotional needs of the diabetic.

Liaison between health providers and community social-mental health agencies.

PROJECT SUMMARY SHEET -- 4

PROJECT TITLE: EDUCATION NEEDS OF VARIOUS AGE LEVELS

OBJECTIVE: To develop and implement educational approaches to meet needs of the person with diabetes (and their families) at various age levels.

APPROACH TITLE:

Development of educational approaches to meet needs of diabetic at various age levels.

DESCRIPTION OF PROJECT:

To develop educational programs to fulfill assessed needs of diabetics of various age levels. Provision of social, psychological, occupational, etc., counseling and age related group experiences appropriate to age levels.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. To assess special needs relating to educational process and emotional adjustments imposed by diabetes.
2. To modify and individualize educational programs using the above findings.
3. To provide social, psychological, occupational, genetic and/or other counseling as needed.
4. Provide age related group experiences -- teen trips, group social events, camps for youth, adult groups, etc.
5. Provide educational and supportive group experiences for parents of diabetic children and youth.

INPUT REQUIRED:

Assessment of specific needs of diabetics of various age levels.

Project modification of educational experiences to meet needs of various age levels.

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FORM OF RESULTS:

Assessment of specific needs (guidelines for education of diabetic at various age levels).

Individualization (modification) of educational programs to account for needs of various age levels.

Programs of counseling and provision for age-related group experiences.

PROJECT SUMMARY SHEET -- 5

PROJECT TITLE: EDUCATION PROGRAMS FOR HANDICAPPED DIABETIC PATIENTS

OBJECTIVE: Identify and implement educational programs appropriate to the needs of diabetics with physical or other disabilities and learning deficits.

APPROACH TITLE:

Development and implementation of educational programs designed to meet the needs of diabetics with physical disabilities (such as blindness) or learning deficits.

DESCRIPTION OF PROJECT:

Assess present resources for handicapped diabetics and identify educational needs. Develop innovative approaches to the delivery of health care (education) to the blind diabetic or the otherwise physically handicapped diabetic. Develop educational materials suitable for use by handicapped diabetics.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Identification and utilization of resources for the physically handicapped and those with learning deficits, such as referral to cardiac rehabilitation programs, prosthetic clinics, special educational opportunities.
2. Development of innovative approaches to the delivery of health care information for blind diabetics and improving quality of life through the use of talking books and other audio aids.
3. Development of educational materials suitable for the use of diabetics with learning deficits.

PRESENT STATUS:

The lack of understanding of the needs of diabetics by agencies providing rehabilitation training to handicapped diabetis results in inadequate training of the blind and handicapped diabetic and loss of economic and health potential.

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INPUT REQUIRED:

Coordinating body to identify resources for handicapped diabetic.

Contract development of innovative approaches to education of blind and handicapped diabetics.

Contract development of educational materials for blind (handicapped) diabetic.

FORM OF RESULTS:

Educational programs and educational materials for blind (handicapped) diabetic.

Liaison between rehabilitation programs and diabetic educators and health providers.

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X. PROJECT SUMMARY SHEETS

PUBLIC EDUCATION

PROJECT SUMMARY SHEET -- 1

PROJECT TITLE: EDUCATION OF SPECIAL SEGMENTS OF THE POPULATION WHO AFFECT THE LIFE OF A DIABETIC PATIENT

OBJECTIVE: To develop and implement a program of instruction of the nature and care of diabetes for segments of the public who may participate in the care of diabetics (e.g., school teachers, emergency care personnel, law enforcement officers, public transportation personnel, and other public servants).

DESCRIPTION OF PROJECT:

Identify minimal standards of care for diabetic during crisis intervention. Develop educational materials (kits) and manual for presentation of materials to special segments of the public affecting life of the diabetic.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Identify essential and appropriate information for incorporation into educational curricula for service segments of the public.
2. Development of manuals for presentation of information to service segments of the public.

PRESENT STATUS:

Misunderstanding of nature of diabetes or lack of training to handle diabetic in acute crisis situations by segments of the population entrusted with their health care and supervision leads to unnecessary embarrassment, morbidity, and even mortality of the diabetic.

INPUT REQUIRED:

Committee to establish essential minimal information needed to care for diabetic in crisis situations.

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Mechanisms to provide appropriate information to service segments of the public, etc., monitor utilization of information (voluntary health agencies).

FORM OF RESULTS:

Guidelines and manuals for cure of diabetic in crisis situation.

Trained and educated service segments of population who might be called upon to provide everyday medical care to the diabetic.

PROJECT TITLE: GENERAL PUBLIC EDUCATION

OBJECTIVE: To increase awareness of the general public of diabetes as a major health problem, affecting quality of life of those persons with diabetes.

APPROACH TITLE:

Education for aid in detection, increase in public support, aid in adjustment of diabetic.

DESCRIPTION OF PROJECT:

Determine attitudes and knowledge of public toward diabetes and diabetics. Prepare information to increase public awareness of nature of diabetes. Provide resources dissemination of information to segments of the population affecting quality of life of the diabetic.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Initiate an audience profile to determine attitudes and knowledge of (general) public toward diabetes.
2. Coordinate existing resources such as voluntary health agencies, industry, federal health agencies, and cooperative extension to deliver health education to the general public.
3. Implement the detection of programs in high risk segments of the population.
4. Utilize audience profile as a pre-test for continual monitoring of the effects of the educational effort.
5. Provide resources of information and dissemination of information to concerned parties, e.g., employers, legislators, insurance providers, and public servants.

PRESENT STATUS:

Discrimination against diabetics by employers, legislators or public servants occurs because of failure of the public to understand the nature of diabetes. The magnitude of diabetes as a

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health problem is often not recognized and diabetes related programs fail to receive adequate recognition and support.

NPUT REQUIRED:

Assessment of public attitudes and knowledge toward diabetes.

Provision of information to general public and to segments of the public affecting the quality of life of the diabetic.

ORM OF RESULTS:

1. Aid in early recognition.
2. Support and recognition for diabetes.
3. Aid in social, economic-psychological adjustment of diabetic.

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XI. PROJECT SUMMARY SHEETS

PROFESSIONAL EDUCATION

PROJECT SUMMARY SHEET -- 1

PROJECT TITLE: EDUCATING THE HEALTH PROFESSIONAL TO BECOME AN EDUCATOR

OBJECTIVE: Encourage the health professional to include education as part of the therapy.

ASSUMPTIONS:

1. The average clinician treating diabetic patients does not have the time or take the time, is not sufficiently motivated or does not have the resources to adequately educate the diabetic patient about his/her disease.

2. Hospitals/clinics are not adequately staffed nor have the facilities/resources to adequately educate the diabetic patient. Because the patient is his/her own primary therapist (T. F. Williams), the patient must be thoroughly familiar with the disease itself, the need for therapy, and the various available modalities/elements of treatment and the management of emergency situations.

3. There is no system or centralized organization that will provide diabetic patients and their families with even the basic rudimentary information they need to know about diabetes.

4. The vast majority of diabetics can get medical care at a lesser cost if education is provided; this will result in fewer hospital admissions, shorter and fewer hospital stays, less time lost in jobs, and an overall improvement in the quality of life.

5. Education provides the family with a better understanding, decreased anxieties, and increased capabilities to cope with family interrelationships.

APPROACHES:

1. In teaching about diabetes to all health professionals, Education should be considered as part of the therapy.

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2. To conduct workshops to attempt to teach health professionals how to educate and relate with their patients and family taking into consideration their socio-economic, cultural, psychological, and educational needs.
3. A task force of medical personnel should be established to evaluate existing data on value of patient education as it relates to the overall management of the disease, reducing hospital admissions, time in hospitals, time lost on the job, etc.
4. Establish training centers within each state to which diabetic patients may attend on an outpatient or a live-in basis as indicated.

   Within each training center a permanent staff of trained health professionals would establish a curriculum to teach patients about the disease and its management, i.e., diet/exercise, insulin dosage/administration, oral therapy, urine testing, personal hygiene, and emergency situations. Each center should be equipped with adequate audio-visual equipment and materials to assist in the training functions.

   Each center should establish teams which would be responsible for outreach programs within that center's geographical area of responsibility. These teams would go out periodically to outreach areas as the need dictates.

   Provisions should be made for re-education of the patients and professional personnel based on knowledge, skills, and attitudes that they may show in evaluations conducted at specific intervals of time.
5. Provide funds to support a research project which will evaluate the potential cost/benefits of a reward system and recommend approaches to implement such a system if appropriate. This effort will involve evaluating the roles, attitudes, and inter-relationships between diabetic patients and the providers; providers and their peer review/quality assurance (Q.A.) activities; results of the Q.A. activities and third party payers, licensing board examinations, health facility licensing, and health program accreditation through compliance with established standards. One concept to consider would be to reward (1) consumers for good management by lowering the rate of increase in premium payments, (2) providers by reimbursing them for educational cost, and (3) providers by depending on them to provide data that would change curriculum content in the educational process and influence the content of board examinations.
6. The health professionals in the center responsible for the outreach programs, must organize health teams for the

education and care of the patient in: HMO's, neighborhood health centers, local health departments, and private practice of medicine, etc.

DESCRIPTION OF PROJECT:

Establishment of regional training centers where the major responsibility would be the development of educational programs for the delivery of the health care of the diabetic patient and the continuing medical education of the diabetic and the health professional.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. That key core personnel and core facilities are provided in the "Centers" for education and demonstration of care of the diabetic patient which will serve as a working model for health professionals.
2. That mechanisms are provided by which we can motivate health professionals to come to the educational courses held in the "Centers" and to keep abreast in the field by coming to the "Centers" for refresher courses at periodic intervals. Examplesof mechanisms that may lead to this change in attitude include: to comply with standards of professional societies, PSRO's certification and relicensure, and to give adequate information and care to patients who are knowledgeable about the disease.
3. That studies done show without a doubt that a team approach is the preferred method in giving education and care to the patient.
4. That services and agencies in the outreach provide the facilities in the community that will facilitate the work of the teams based on data which will prove without a doubt that this is the best approach if properly conducted.
5. Funds are provided to conduct the research studies needed to substantiate the validity of the statement that proper education leads for a better life style of the diabetic and that the team approach is the best way to deliver their health care. Funds are also provided for the educational workshops of the health professionals.
6. Coordinators exist between the "Centers," the National Diabetes Educational Advisory Board, the government, voluntary and private agencies who are responsible for the delivery of the health care, the general public, and the teaching institutions (professional schools such as medical, nursing, etc.)

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7. That information regarding the availability of these facilities is well disseminated among professionals and the public.
8. That if solid data is provided to validate our statements in paragraph 5, third party payers will reimburse health professionals for the education of the patient.

PRESENT STATUS:

As a rule, at present, education is not being considered a part of the therapy of the patient.

INPUT REQUIRED:

Identify and evaluate the data already available related to the value of patient educational therapy. Conduct prospective studies throughout the country to confirm or refute the above findings.

FORM OF RESULTS:

Improve the overall health and quality of life of the diabetic, and establish a basis for the continued improvement and modification of the health care of the diabetic patient. Obtain third party reimbursement for patient education.

PROJECT TITLE: TEAM APPROACH IN THE CARE OF THE DIABETIC PATIENT

GOAL: To increase the use of the team approach in diabetes care.

SPECIFIC OBJECTIVES:

1. To clearly define the advantages of the team approach to diabetic care.
2. To delineate the members of the team, including their qualifications.
3. To meticulously describe the functions and responsibilities of each member of the diabetes team.
4. To promote understanding of these elements by the physician and the team members and to coordinate the professional interplay between each of them with each other and with the patient.
5. Using sound scientific evidence the importance of the team approach to diabetes care should be proven so as to convince third party payers to provide reimbursement for education.

APPROACHES:

1. To establish the minimal standards of knowledge and skills relating to diabetes for health professional team members.
2. To promote the health care team concept through core curriculum contact in the appropriate health professions.
3. Utilize existing centers and systems which make use of the team approach to demonstrate the development, operation, and validity of the method.
4. To determine existing health profession manpower resources at the national, state, and local levels and develop techniques for filling gaps.
5. Encourage local or regional professionals to become cognizant and mutually respectful of each other and to come together to plan a joint program of diabetes management through Continuing Medical Education programs.
6. Include the health team-care concept in the Patient and Public Education Committee report in hopes of creating a demand for this type of service.

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7. Provide grant funds for developing public, patient, and professional education materials which relate to the health care team concept.

SPECIFIC PROJECTS USING TEAM APPROACH:

1. See report of individual professional subcommittees regarding core curriculum development.
2. See projects of other subcommittees relevant to the team approach.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

Establish that advantages exist to the team approach concept of diabetes care.

PRESENT STATUS:

The team approach is being used by a handful of educational programs in the nation. The diabetic patient is taken care mainly by primary physicians who are not prepared to deliver a comprehensive care (see State of the Art, Professional Education).

INPUT REQUIRED:

Identify and evaluate available data on the value of the team approach.

FORM OF RESULTS:

1. To improve the overall health and quality of the diabetic patient and establish a basis for the continued improvement and modification of the health care of the diabetic patient.
2. To ensure third party reimbursement for diabetes education.

PROJECT TITLE: CURRICULA MODEL DEVELOPMENT, IMPLEMENTATION, AND EVALUATION

OBJECTIVE: Develop and assess the effectiveness of diabetes education in various curricula models in health professional programs.

APPROACHES:

1. Provide funds to educational institutions for supporting efforts in developing, implementing, and evaluating curricula models. As a minimum the following model types should be funded.
2. Courses to include the minimal essentials in knowledge and skills in diabetes.
3. Use of clinical education facilities for exposure of students to diabetic patients.
4. Use of teaching simulation aids to augment and/or replace the clinical education experience.
5. Use of diabetic camps for exposure of students to diabetic patients.
6. Variable length and type of education psychology and human behavior course content in.
7. Continuing education models for urban, suburban, and rural environments.
8. Curricula stressing the health care team concept.
9. Graduate or certificate level programs with concentrated course content in diabetes. This model would produce a specialist in diabetes.
10. Teaching simulation models must be developed and evaluated, i.e., audio-visual role playing sessions, blood sugar status indicator device, self-instructional packages.
11. Examination materials for evaluating the knowledge and behavioral skills of all health professionals at the basic and specialist levels need to be identified.
12. Funds should be available to support a curriculum coordinator and a research/evaluation specialist for each curriculum model project, simulation aids for appropriate projects, office equipment and supplies, travel and secretarial support, and support of continuing education programs.

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13. Through workshops there should be coordination between projects to ensure appropriate controls in the research/evaluation activities so results can be compared between institutions. The result of these projects should have institution independence application.

DESCRIPTION OF PROJECT:

Funds will be made available to support efforts identified in the approach.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Identification of funds to support these projects.
2. Qualified applicants (e.g., medical schools, professional societies, etc.) with acceptable protocols including an evaluation outline to determine effectiveness of models.

PRESENT STATUS:

Curricula assessment on national basis is unknown.

INPUT REQUIRED:

Identification of available minimal standards.

FORM OF RESULTS:

Prepare health professional to be more knowledgeable about diabetes and effective in the care and management of the diabetic patient.

PROJECT SUMMARY SHEET -- 4

PROJECT TITLE: CONTINUING MEDICAL EDUCATION PROGRAMS IN DIABETES

OBJECTIVE: To design CME programs in diabetes which will assure the competence of all health professionals in their relationship with diabetic patients.

APPROACHES:

1. The DRT Center will offer CME programs for all health professionals.
2. The ADA and its affiliate associations must continue offering postgraduate courses for physicians and allied health professionals.
3. Professional schools should play a paramount role in the continuing education of all health professionals.
4. National societies and state societies must be encouraged to include topics on diabetes mellitus in their continuing medical education programs.
5. The media and industry must continue providing educational material in a coordinated effort and develop them according to the guidelines established by the National Clearing House.

DESCRIPTION OF PROJECT:

Utilizing the data collected in the "knowledge assessment project," the cognitive needs of practicing physicians will be organized into the curricula for continuing medical education courses in diabetes. Such courses will be organized in all regions by Diabetes Research and Education Centers and by diverse qualified groups (Medical Schools, ADA, national and state medical societies, NIH, state and local health departments, etc.).

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Assessment of knowledge needs.
2. Ability to agree on course content.

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3. Arrange approval of course curricula for CME credits by accreditation.
4. Availability of qualified faculty to present the courses.
5. Funds availability from all sources including fees.

PRESENT STATUS:

Many fragmentary and complete courses are utilized but they rarely relate to established needs.

INPUT REQUIRED:

Review content and practicality of CME courses being offered.

FORM OF RESULTS:

This project should enhance the health professional's knowledge and skills in the overall care and management of the diabetic patient.

PROJECT SUMMARY SHEET -- 5

PROJECT TITLE: DESCRIBING THE PROFESSIONAL BEHAVIOR TOWARD THE DIABETIC PATIENT

OBJECTIVE: To generate a data base for evaluating the impact o education on the performance of health care professionals interfacing with diabetic patients.

APPROACH TITLE:

Evaluation of professional performance, and changes in professional performance characteristics, through critical incident interviews.

DESCRIPTION OF PROJECT:

This project is directed toward the identification of professional behavior toward the diabetic patient. Initial descriptions of behaviors will be compared with behavior descriptions after the professionals have participated in the educational programs suggested herein. Behavior change may thereby be assessed.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. The selection of target groups, using probability sampling plans, for which critical incidents may be generated.
2. The development of comparison bases, either through pre- and post-interviews or through the description of performan characteristics for target (trained) and for matched (untrained) groups.
3. The sampling of decision incidents, by decision category, to be evaluated for "correctness" by a purposefully selecte panel within each professional role or job classification.

PRESENT STATUS:

Project not yet started.

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INPUT REQUIRED:

A considerable amount of time and funding, perhaps 20 percent of this project should be devoted to preliminary planning (including sampling decision, construction of interview schedules, etc.).

FORM OF RESULTS:

The results would provide not only specific performance characteristics and how these characteristics change as a function of participation in education programs, but would also identify performance demands for which no training or educational programs have been suggested. In this sense, the pre-test interviews serve as the basis for extensive needs assessment.

PROJECT SUMMARY SHEET -- 6

PROJECT TITLE: MEASURING ATTITUDES OF PROFESSIONAL HEALTH CARE PERSONNEL TOWARD DISCUSSION OF DIABETES

OBJECTIVE: To develop a summated attitude scale, with subscales directed toward specific attitude objectives, to be used in evaluating attitude change from participation in the professional education program described herein.

APPROACH TITLE:

Constructing an Attitude Scale.

DESCRIPTION OF PROJECT:

The project involves the construction, pre-testing, and validation of a scale for assessing attitudes toward differing dimensions of diabetes. The scale is to be employed in evaluating the extent to which educational objectives associated with changing attitudes are accomplished through the educational program suggested here.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Specification of specific attitudes to be changed.
2. Generation of itemized, administrative of pool to sample, reduction of itemized pool to final scale.
3. Validation of scale for specific groups of professionals.

PRESENT STATUS:

Project not yet started.

INPUT REQUIRED:

Specification of attitudes to be changed, with specification to come from the Education Committee of the National Commission on Diabetes.

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FORM OF RESULTS:

A final scale for measuring attitudes toward dimensions of diabetes.

PROJECT SUMMARY SHEET -- 7

PROJECT TITLE: EVALUATING THE IMPACT OF EDUCATIONAL PROGRAMS ON THE FACILITATION OF SELF-CARE ATTITUDES AND BEHAVIOR

OBJECTIVE: To evaluate the extent to which patient sentiments and self-treatment behavior improve as a function of (1) patient education programs, (2) interaction with "trained" health-care personnel.

APPROACH TITLE:

To develop an evaluation strategy for assessing change on the three-fold criteria labelled "facilitation," consisting of: (1) the patient's understanding of his condition, (2) the patient's feelings of confidence in coping with his condition, (3) the patient's avoidance of errors in self-treatment.

DESCRIPTION OF PROJECT:

The development of measures for the three criteria identified above would necessarily precede the collection of evaluation data. Subsequently, measures would be applied to individuals identified as "targets" in one of the following two senses: (1) they participated in patient education programs, or (2) they received care from professionals who participated in professional education programs.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. The development of measures for the three criteria identified above.
2. The selection of target patient groups, and the development of a comparison base, either through pre- and post-testing of "experimental" and "method-control" groups or through the testing of target (meeting one of the two criteria identified under "Description of Project") and method (failing on both of the two criteria) groups.
3. Since the potential patient population is great, purposive sampling decisions would be required in identifying those patient groups on whom the evaluation data would be collected

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PRESENT STATUS:

Project not yet started.

INPUT REQUIRED:

A preliminary planning conference involving social scientists and health care professionals would be necessary to identify the available techniques for developing measurements associated with this evaluation project.

FORM OF RESULTS:

Pre-post data on the three criteria, or data on patient groups which have either participated in patient education programs or have received care from professionals who have participated in professional education programs compared with interested patients not meeting either of these two criteria.

PROJECT SUMMARY SHEET -- 8

PROJECT TITLE: CORE CURRICULUM IN DIABETES MELLITUS FOR MEDICAL STUDENTS

GOAL: To improve the knowledge, skills, and attitudes of the health professional to provide effective care for the patient with diabetes mellitus.

OBJECTIVE: Identify a core curriculum for diabetes and related endocrine disorders to be used in the teaching of this discipline in the basic and medical sciences in medical school.

APPROACHES:

1. Assemble a group of experts for the purpose of designing a curriculum model.
2. Share the curriculum model with the Curriculum Committee of each medical school.
3. Once designed, test and evaluate this curriculum model.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. In the design of the core curriculum, use a multi-disciplinary approach. All faculty segments should be represented, such as: Anatomy, Physiology, Biochemistry, Parmacology, Pathology, Adult and Pediatric Endocrinology, Preventive Medicine, Family Medicine, Surgery, Obstetrics and Gynecology, etc.) and representatives of the student body.
2. Get input from professional societies very much interested in this endeavor, such as: American Diabetes Association, Endocrine Society, American Association of Medical Colleges, American College of Physicians, American Academy of Family Practice, etc.
3. In the preparation of the curriculum for the clinical year, consider: (a) using a health team approach in the teaching of diabetes mellitus, (b) orient the education of the student around the problems and needs of the patient.

4. Give the responsibility of the consideration and planning of this educational endeavor to the National Diabetes Committee which will identify the task force and will negotiate the funding of such workshop or workshops.
5. In the preparation of the curriculum assess the needs of the students, develop educational objectives, assess available resources, and select and apply appropriate educational methods.
6. Test this curriculum and determine its effectiveness by an appropriate evaluation.

PRESENT STATUS:

Every medical school has its own general curriculum, some of which are integrated and some not. In certain curricula, the time alloted to the teaching of diabetes is very limited.

INPUT REQUIRED:

1. Surveys and assessments of existing curricula.
2. Assign a task force of at least 15 professionals to carry out this task.
3. Need at least to conduct three curriculum workshops of three days each.
4. Money: 15 consultants at $100 honorary salary and $50 per diem at $12,000/workshop = $36,000.

FORM OF RESULTS:

1. To assure that medical students have a minimum amount of knowledge, skills, and attitudes which are considered adequate in the teaching of diabetes and related endocrine disorders.
2. The development of an integrated curriculum from the very first years of medical school exposes the medical student early in his career to the multi-disciplinary approach in the teaching and practice of medicine.
3. If we develop excellent educational experiences, we will most likely motivate students' interest in diabetes.

PROJECT TITLE: KNOWLEDGE, SKILLS, AND ATTITUDES OF PHYSICIANS IN TRAINING REGARDING DIABETES MELLITUS

GOAL: Improve the knowledge, skills, and attitudes of the health professional to provide effective care of the patient with diabetes mellitus.

OBJECTIVE: Assess the knowledge, skills, and attitudes that physicians in training (apart from those on the subspecialty training) have regarding diabetes at the beginning of their training and set minimal standards.

APPROACHES:

a. Give a pre-test to ascertain the knowledge, skills, and attitudes which the physician in training has at the beginning of his/her training.
b. Identify the content about diabetes and related endocrine disorders in the ECMFG, the second the third part of the National Boards and the Flex.
c. Recommend that certifying Boards and agencies include in their examinations that minimum number of questions which may help assess the knowledge the physician has in diabetes and related disorders.
d. Each specialty and subspecialty board should organize a committee which will define which are the concepts, attitudes, and skills in which the physician in training must be highly competent and aware of. This committee must also define the attitudinal objectives (example: Guidelines to the Content of Pediatric Residency: A Theoretical Model with Practical Implications. Deacon, J.R., Mager, T.C., Tracy, P.C. Wisconsin School of Medicine and Chapter of the American Academy of Pediatrics.)
e. In the effort above the American Diabetes Association and Endocrine Society should have some input in the elaboration of the concepts, skills, and attitudes that the physician in training must have regarding this field.

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KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Give the responsibility of the coordination and planning of the educational effort to the National Diabetes Committee.
2. Identify a Task Force for the design of the curriculum that is multi-disciplinary and in which the appropriate certifying agencies are represented, i.e., American Board of Internal Medicine, American Academy of Family Practice, etc.
3. Involve the physician in training in the development of minimal standards.
4. Provide the funds for such an educational endeavor.
5. Share the minimal standards established with institutions that provide training, HMO's, PSRO, accreditation agencies, etc.

PRESENT STATUS:

Minimal standards have not been established for most of the specialists.

INPUT REQUIRED:

1. Survey minimal standards being developed by various specialists and subspecialists.
2. Manpower: Arrange the task force in each specialty program to carry out the task.
3. Money: $36,000.

FORM OF RESULTS:

1. Assure that physicians in practice get adequate knowledge and develop the skills necessary to take care of the diabetic in their area of expertise.
2. Hopefully, the above will improve the care of the diabetic patient.

PROJECT SUMMARY SHEET -- 10

PROJECT TITLE: CLINICAL TRAINING IN ENDOCRINOLOGY AND DIABETES

GOAL: Improve the knowledge, skills, and attitudes of the health professionals to provide effective care for the patient with diabetes mellitus.

OBJECTIVE: Assures that physicians training on clinical endocrinology are competent in diabetes and vice versa.

APPROACHES:

a. All directors of training programs in endocrinology and diabetes must make the needed arrangements to assure a broad exposure of the trainee to patients with diabetes and endocrine disorders.
b. To assure a broad training, the trainee should, in his clinical year, rotate through:

    1. Adult endocrinology
    2. Pediatric endocrinology
    3. Reproductive endocrinology.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Acceptance of the concept by the providers of training and the consumers.
2. Compulsory certification by the Board of Endocrinology and Metabolism to be considered specialists.
3. Authority for implementation to National Diabetes Education Advisory Board.
4. Funds are provided by the Hospital or other agency (not NIH) to support this year of clinical training.

PRESENT STATUS:

Training programs in endocrinology and diabetes have been varied in nature. Most of the traineeships in the past were research traineeships supported by the National Institutes of Health which

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follow the avenues of interest to the educator. A trainee could learn a lot about thyroid diseases in one instance, adrenal diseases in others, and very little about diabetes. Historically, all the traineeships in Pediatric endocrinology in the past had diabetes mellitus excluded from their educational program. This is so much so that a great percentage of the clinical diabetologists in this country are self-made.

INPUT REQUIRED:

1. Survey programs which are providing a clinical year of training and their type of clinical explosure to diabetes.
2. Task Forces named to discuss and make recommendations regarding this concept.
3. Assess opinions of training program directors and physicians currently on training.
4. Provide funds for this task.

FORM OF RESULTS:

1. Assures that the physician with the specialty is competent to manage properly the diabetic patient.

PROJECT TITLE: KNOWLEDGE ASSESSMENT OF PRACTICING PHYSICIANS AND RESPONSIVE CONTINUING MEDICAL EDUCATION

OBJECTIVE: To evaluate the practicing physician's knowledge of diabetes in order to assess educational needs and to plan specific programs of continuing medical education.

APPROACH TITLE:

Determination of gaps and needs in skills and knowledge ascertained by personal or telephone interview, or by written self-assessment examination of a sample of each professional subgroup.

DESCRIPTION OF PROJECT:

A sample of practicing physicians will be examined to determine their skills and knowledge of diabetes, including diagnosis, preventive-medical and acute crisis management and the treatment of the long-term complications. Evaluation will be made by written and verbal examination, problem-solving, and clinical assessment.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Elicit the cooperation of an adequate sample of practitioners.
2. Develop appropriate tools and techniques of knowledge evaluation.
3. Collation and interpretation of data and subsequent development of appropriate CME courses.

PRESENT STATUS:

A limited amount of information is available through recent reexamination and recertification procedures by American College of Physicians, Association of Family Practitioners, and perhaps others. Many fragmentary and complete courses exist, but their responsiveness to needs is uncertain.

INPUT REQUIRED:

Knowledge assessment.

Responsive care.

FORM OF RESULTS:

This project will develop a basis to determine the continuing medical education needs concerning diabetes of practitioners with different levels of education and variable time span since completion of training.

PROJECT TITLE: ATTITUDINAL ASSESSMENT OF PRACTICING PHYSICIANS

OBJECTIVE: To evaluate the practicing physician's attitude concerning diabetes.

APPROACH TITLE:

Data collection as to attitudes done by development of appropriate instruments and by personal, telephone or mail interview by skilled professional representatives (e.g., Opinion Research Corporation, Response Analysis, Gallup Poll or others).

DESCRIPTION OF PROJECT:

A sample of practicing physicians will be interviewed to determine their attitude about diabetes as a disorder and about the diabetes patient. Special instruments and techniques will be developed by skilled professionals in the field of opinion research. The time and factors which relate to attitude will be ascertained.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Obtain the cooperation of an adequate sample of practitioners.
2. Development of appropriate instruments which will give meaningful data by psychologists in the field of opinion research.
3. Collate the data and evaluate its significance.

PRESENT STATUS:

No scientific data is available, except in small peripheral or fringe studies.

INPUT REQUIRED:

Survey of data available regarding attitudes of practicing physicians.

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FORM OF RESULTS:

The project will shed light on the degree of motivation of practicing physicians to participate in education programs on diabetes and the quality of care such physicians give to patients with diabetes. This may give guidance for the means of attitudinal change.

PROJECT TITLE: CONTINUING MEDICAL EDUCATION PROGRAM FOR PHYSICIANS

OBJECTIVE: To design continuing medical education courses in diabetes which will assure the competence of physicians to treat diabetes.

APPROACHES:

a. The Diabetes Education Centers and the Diabetes Training and Research Centers will offer courses of a continuing medical education as needed to reach the physicians in the region (and allied health professionals). Four such courses could be programmed during the year. In order to motivate the physician to work in a team with allied health professionals, the courses may be given to both groups of professionals together.
b. The ADA and its affiliate associations must continue offering postgraduate courses for physicians and allied health professionals.
c. Medical schools should play a paramount role in the continuing medical education of the medical professionals.
d. National societies and state societies must be encouraged to include topics on diabetes mellitus in their continuing medical education courses. This has already been addressed by the Academy of Family Practice.
e. The media and industry must continue providing educational material in a coordinated effort and develop them following educational principles and including a self-assessment.

DESCRIPTION OF PROJECT:

Utilizing the data collected in the "knowledge assessment project," the cognitive needs of practicing physicians will be organized into the curricula for continuing medical education courses in diabetes. Such courses will be organized in all regions by Diabetes Research and Education Centers and by diverse qualified groups (Medical Schools, ADA, national and state medical societies, NIH, state and local health departments, etc.).

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KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Assessment of knowledge needs.
2. Ability to agree on course content.
3. Arrange approval of course curricula for CME credits by accreditation.
4. Availability of qualified faculty to present the courses.

PRESENT STATUS:

Many fragmentary and complete courses are utilized but they rarely relate to established needs.

INPUT REQUIRED:

1. Review CME courses being offered.
2. Review content of CME to assess its practicality.

FORM OF RESULTS:

This project should enhance the practitioner's knowledge and skills in the diagnosis and management of diabetes.

PROJECT TITLE: RESEARCH AND CLINICAL FELLOWSHIPS IN DIABETES AND RELATED ENDOCRINE DISORDERS IN UNDERGRADUATE AND POSTGRADUATE STUDENTS

GOAL: Generate adequate number of health professionals specifically interested in diabetes.

OBJECTIVE: Create student and postgraduate research and clinical fellowship programs in diabetes and related endocrine disorders.

APPROACHES:

a. Student research fellowship programs must be increased. Funds should be provided to those institutions which are conducting the finest research with specific goals to unveil the cause of diabetes and its complications.
b. The NIH should increase the individual research fellowship and the individual National Research Service Awards in diabetes and related endocrine disorders. These fellowships and science awards should be offered by the NIAMDD, the National Heart and Lung Institute, the National Institute of Neurological Diseases and Stroke, the National Institute of Child Health and Human Development, and the National Eye Institute. Other agencies include voluntary agencies such as the Juvenile Diabetes Foundation and others.
c. University administered student clinical fellowships must be started to suit the needs of those students who are interested in the clinical practice of medicine. Funds should be allocated to comprehensive outreach educational programs in diabetes and related endocrine disorders where the student will be educated in the delivery of ambulatory care, and in the use of health care teams, (use programs which have been developed considering above all the patient needs and the needs of the community).
d. The hospital administration and the State Department of Health must provide funds for the training of specialists in diabetes and related endocrine disorders on a scholarship basis for those candidates interested in a purely clinical career. These specialists should serve in the needed areas of

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the state as assigned by the Department of Health, a time equivalent to that in which provision of funds was made available for this clinical training.

e. Combined funds should be made available for candidates who want to follow a combined clinical and research career. All physicians should have a clinical year of training in which he should become competent in the broad field of endocrinology and diabetes.

EY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Proposals are accompanied with hard data documenting the need for additional manpower.
2. Funds are provided by the various NIH agencies, other agencies and foundations (research), hospitals, and state health departments (clinical).
3. Philosophy of Congress change regarding the new policy of providing funds for primary practice physicians rather than other specialists and subspecialists.
4. Congress must understand fully from the report of the Commission that if we want to eventually find the cause and cure for diabetes, funds have to be provided for research.
5. Coordination with National Diabetes Committee.

RESENT STATUS:

Practically no NIH funds provided for student research fellowships, and there has been a marked reduction in the funds provided for postgraduate research fellowships (see State-of-the-Art). Hospitals willingly pay positions for primary care physicians but not for other specialists and subspecialists.

ORM OF RESULTS:

Will assure that the manpower will exist in the near future to conduct the needed research in the field.

Will assure that the manpower is trained which will have expertise in the care of the diabetic.

PROJECT TITLE: ASSESSMENT OF DIABETES MANPOWER

OBJECTIVE: Identify and prepare a roster of health professionals with expertise in the care of the diabetic patient.

APPROACHES:

1. Prepare a questionnaire to be sent to all training program directors in endocrinology and diabetes requiring the physicians they have trained and their whereabouts.
2. The American Diabetes Association should send a questionnaire to its membership to identify those health professionals who take care of the diabetic patient.
3. The same should be done by the Endocrine Society, the American College of Physicians, the American Dietetic Association, the American Nursing Association, the American Podiatric Association, and the American Association of Social Workers.
4. A listing should be obtained of the membership of the American Association of Diabetes Educators.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Funds are provided for this endeavor.
2. Cooperation from societies and individuals is very much needed.

PRESENT STATUS:

There are no accurate figures regarding the physician and other health professionals who have expertise in the care of the diabetic.

INPUT REQUIRED:

1. Information from professional society and individuals.

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FORM OF RESULTS:

A listing of diabetes manpower will be available for the use of funding agencies, and diabetic patients who are looking for expert care.

Nurses: Future Directions

A. GOAL: To improve the knowledge, skills, attitudes and numbers of nurses who deliver the health care of the diabetic patient.

B. OBJECTIVES:

1. To provide all nurses who care for diabetic patients the opportunity for increasing their knowledge and skill in this type of care.

2. To increase the number of nurses specializing in diabetic care, and to assure a minimum degree of competence on the part of these nurses.

C. APPROACHES:	D. PROJECTS:
1. Develop a country-wide network of nurses to provide continuing education and consultation in diabetic care.	1. Diabetes nurse consultants
2. Prepare educational materials for nurses	2. Develop and distribute guidelines. 3. Develop instructional materials to be used for continuing education for nurses.
3. Improve content in the basic curriculum.	4. Set standards for minimal essentials in diabetes content.
4. Develop an increased number of patient teaching positions for qualified nurses.	5. Seed money to develop diabetes teaching program. 6. Study health outcomes and cost effectiveness.

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APPROACHES	PROJECTS
5. Develop a certification procedure for nurse specialists in diabetes.	7. Develop standards for certification of nurse specialists. 8. Develop a system of certification for nurse specialists. 9. Develop standards for programs to prepare nurse specialists. 10. Develop a system for approving courses for nurse specialists.

PROJECT SUMMARY SHEET -- 16

PROJECT TITLE: DIABETES NURSE CONSULTANTS

OBJECTIVE: To provide all nurses who care for diabetic patients the opportunity for increasing their knowledge and skill in this type of care.

APPROACH TITLE:

A network of nurses to provide continuing education and consultation in diabetic care.

DESCRIPTION OF PROJECT:

Distribute nurse educators/consultants to all parts of the country, using the diabetes centers as the base of operations. Nurses are to be located at the centers or at other university schools of nursing within the geographic areas for which they are responsible.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Well educated nursing consultants in diabetes education/therapy.
2. Continuing education programs that conform to the American Nurses' Association's "Standards for Continuing Education in Nursing."
3. Available to all parts of the country (including all rural or small hospitals, and appropriate public health agencies).
4. That universities agree to try to maintain the positions of the diabetes nurse consultant after funding ceases.
5. State universities are preferred if the geographic area served is within a state boundary.

PRESENT STATUS:

Diabetes nurse consultants are non-existent for almost all of the country; yet poor knowledge of diabetes on the part of nurses has been documented and experience shows a large demand for consultants and continuing education services.

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INPUT REQUIRED:

Development of continuing education for preparation of diabetes teaching nurse consultants. "Seed monies" to start these positions with the understanding that the positions will have to be assumed by another agency. (Projected number of nurses needed would be 30 at least funding for 2 years.)

FORM OF RESULTS:

Increase the number of nurses in the local communities who are educated in the care of the diabetic. Increase awareness within each community of the importance of continuous education in the care of diabetics. Increase awareness of the importance of the need of educating for the diabetic and his/her family.

PROJECT TITLE: DEVELOP AND DISTRIBUTE GUIDELINES

OBJECTIVE: To provide all nurses who care for diabetic patients the opportunity for increasing their knowledge and skill in this type of care.

APPROACH TITLE:

Prepare educational materials for nurses.

DESCRIPTION OF PROJECT:

Guidelines or protocols for the following types of care should be developed and distributed to the nursing staff in all agencies where diabetics are being cared for:

a. Care before x-rays
b. Care before, during, and after surgery
c. "Survival" teaching
d. Care of the patient in ketoacidosis
e. Care of the pregnant diabetic
f. Emergency treatment of the unconscious or confused patient when diabetic ketoacidosis or hypoglycemia is considered
g. Preparation for glucose tolerance testing
h. Etc.

This should be done through contract to the professional section of the American Diabetes Association.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Carried out by recognized experts in the field, with adequate representation from both nursing and medicine.
2. Wide distribution through direct mailings and professional journals.
3. Provisions made to update and redistribute materials as needed.

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PRESENT STATUS:

The nursing staff in hospitals and other health-care agencies are currently dependent upon procedures (written or understood) developed by local staff who may or may not be familiar with presently recommended care. (See "State-of-the-Art" regarding knowledge of professionals.)

INPUT REQUIRED:

1. Expertise of recognized experts from both nursing and medicine to prepare guidelines.
2. $_____ for staff, publication, and distribution mailing costs.

FORM OF RESULTS:

It is anticipated that this will help to upgrade the practice of care of nurses in general practice who currently do not have access to materials of this sort with consistent high quality.

PROJECT SUMMARY SHEET -- 18

PROJECT TITLE: DEVELOP INSTRUCTIONAL MATERIALS TO BE USED FOR CONTINUING EDUCATION FOR NURSES

OBJECTIVE: To provide all nurses, who care for diabetic patients, the opportunity for increasing their knowledge and skill in the care of the diabetic. To increase the number of nurses specializing in diabetic care, and to assure a minimum degree of competence on the part of these nurses.

APPROACH TITLE:

Prepare educational materials for nurses.

DESCRIPTION OF PROJECT:

Devise and develop instructional materials for use in educating diabetes nurse specialists and other nurses involved in the care of the diabetic. The form of these materials may be in all media available, so that the nurse can use the audio and/or visual aids available to her.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Well prepared, scientifically sound and up-to-date material on diabetes therapy/and education principles that will make the nurse want to use them.
2. Funding for this project.
3. A plan for distribution.
4. Expert personnel available to prepare these materials.
5. In screening applications, an effort should be made to:
    a. Assure that the need for the material is justified.
    b. Avoid duplication of existing materials.
    c. Assure that provision is made for adequate field testing.
    d. Assure that provision is made for the updating of materials as needed.
    e. Assure that provision is made for continued distribution of materials at a reasonable cost.

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PRESENT STATUS:

There is minimal up-to-date educational material available to the nurse on her level. Funding for this type of material is not available and the cost is high.

INPUT REQUIRED:

Experts in media/material production with resource personnel who have sound diabetes knowledge. Questionnaires to identify the most needed material at the present time. This would have to be an ongoing project -- perhaps through the diabetes nurse consultants, who will know the needs of their regions.

FORM OF RESULTS:

Better educated nurses in the management/care of diabetes throughout the country.

PROJECT SUMMARY SHEET -- 19

PROJECT TITLE: SET STANDARDS FOR MINIMAL ESSENTIALS IN DIABETES CONTENT

OBJECTIVE: To provide all nurses who care for diabetic patients the opportunity to increase their knowledge and skill in this type of care.

APPROACH TITLE:

Improve content in the basic curriculum.

DESCRIPTION OF PROJECT:

The National Advisory Council, through a professional task force of nurses, should identify the minimal essentials in diabetes content in undergraduate nursing curricula.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Develop task force of nurses who are recognized by peers as experts in diabetes content and curriculum design.
2. Dissemination of the standards to faculties of schools of nursing.

PRESENT STATUS:

Currently no such guidelines are available, and the diabetes content of nursing curricula varies widely. It has also been documented that the average knowledge of nurses about diabetes is inadequate. (See "State-of-the-Art".)

INPUT REQUIRED:

1. Expertise of recognized experts as stated above.
2. $_____for consultation fees, publication, and mailing costs.

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FORM OF RESULTS:

It is anticipated that faculty who are developing nursing curricula and nursing courses with diabetes content would refer to the standards as a guideline of what content to use.

PROJECT SUMMARY SHEET -- 20

PROJECT TITLE: DEVELOP DIABETES TEACHING PROGRAMS (SEED MONEY)

OBJECTIVE: To increase the number of nurses specializing in diabetic care, and to assure a minimum degree of competence on the part of these nurses.

APPROACH TITLE:

Teaching positions for qualified nurses.

DESCRIPTION OF PROJECT:

Seed money should be provided to pay half the cost of starting diabetes teaching programs in areas where none exists. (1 1/2 years per site)
(Example: Diabetes Teaching Nurse sites of the N.C. Regional Medical Program.)

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Preparation of nurses to assume these positions.
2. Reasonable assurance of continuation of the program after seed money is no longer available.
3. Administrative support of the program in the agency.
4. Nurse diabetes consultants and significant others have to be available to help the local communities establish and promote such programs.

PRESENT STATUS:

There are currently many health-care settings which are providing care to diabetic patients but which do not have a teaching program for these patients.

INPUT REQUIRED:

1. Preparation of nurses to assume these positions.

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2. Review of applications for seed money.
3. $12,000 per site for salary and other expenses (travel, equipment, secretarial, etc.)(for one nurse and supporting services for 1 1/2 years -- half the cost).

FORM OF RESULTS:

It is anticipated that a large percentage of these sites would be continued by local funding after seed money ceases, as demonstrated by RMP programs in North Carolina and other states.

PROJECT TITLE: ESTABLISH PROGRAMS IN GRADUATE SCHOOLS OF NURSING (SEED MONEY)

OBJECTIVE: To increase the number of nurses specializing in diabetic care, and to assure a minimum degree of competence on the part of these nurses.

APPROACH TITLE:

Increase the number of nurses prepared on the graduate level with a specialty in endocrinology/diabetes.

DESCRIPTION OF PROJECT:

Seed money should be made available to graduate schools of nursing for establishing endocrinology/diabetes programs.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Qualified faculty.
2. Funding.
3. Development of programs creating further need for increased manpower.
4. Studies to further prove the effectiveness of this type of care.

PRESENT STATUS:

Schools are now designing curricula in specialty areas (e.g., cancer, cardiovascular, etc.). As diabetes programs and the emphasis on primary-care nursing continue to expand and increase, there will be increasing demand for this preparation.

INPUT REQUIRED:

1. Funds -- seed money for faculty placement and development of core curriculum.

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2. Standards for programs to prepare nurse specialists in diabetes/endocrinology.
3. Qualified faculty.

FORM OF RESULTS:

Expert nursing clinicians and educators available to provide quality care for diabetics.

PROJECT TITLE: STUDY OF HEALTH OUTCOMES AND COST EFFECTIVENESS

OBJECTIVE: To increase the number of nurses specializing in diabetic care, and to assure a minimum degree of competence on the part of these nurses.

APPROACH TITLE:

Teaching positions for qualified nurses.

DESCRIPTION OF PROJECT:

Funds should be made available to study the health outcomes and cost effectiveness of various methods of providing patient education and of health-care delivery for diabetic patients, including the use of diabetes teaching nurses and diabetes nurse practitioners.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Ongoing programs using different teaching and health-care-delivery strategies.
2. Demonstration of cost effectiveness of these roles to all health personnel, health administrators, and the public.
3. Possible way to encourage nurses to provide patient education and primary care.
4. Demonstrate the importance of patient education as therapy.

PRESENT STATUS:

There is almost no hard data available on cost effectiveness of patient education and use of nurse practitioners.

INPUT REQUIRED:

1. Available funds.
2. Variety of teaching programs to be studied.

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FORM OF RESULTS:

Such studies would (1) help to develop third-party payment for diabetes teaching, (2) encourage health-care agencies to develop programs, (3) provide guidance re preferred teaching methods, and (4) support the role of patient education as therapy.

PROJECT SUMMARY SHEET -- 23

PROJECT TITLE: STANDARDS FOR CERTIFICATION OF NURSE SPECIALISTS

OBJECTIVE: To increase the number of nurses specializing in diabetic care, and to assure a minimum degree of competence on the part of these nurses.

APPROACH TITLE:

Certification for nurse specialists.

DESCRIPTION OF PROJECT:

Standards for the preparation of nurse specialists in the following three categories should be prepared:

a. Diabetes Teaching Nurses: prepared to teach diabetic patients in one-to-one situations or in small groups.
b. Diabetes Nurse Practitioners: prepared to give primary care to diabetic patients under the direction of a physician.
c. Diabetes Nurse Educators: prepared to function as consultants, supervisors, or coordinators of diabetes education programs, or to provide graduate or continuing education to registered nurses.

Suggested organizations to be involved: American Diabetes Association, American Nurses Association, and the American Association of Diabetes Educators.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Development of programs to prepare these nurses.
2. Expertise of nurses involved in such positions, and of physicians who are specialists in diabetes care (particularly as it applies to "b" above).

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PRESENT STATUS:

Among nurses who are specializing in diabetes, three somewhat differing functions have emerged, as identified in a, b, and c above. Professionals and the public are beginning to ask how they can determine qualifications for such types of care.

INPUT REQUIRED:

1. Expertise of nurses involved in such positions, and of physicians who specialize in diabetic care (particularly as it applies to "b" above).

FORM OF RESULTS:

This would serve as a basis for a certification procedure for the three categories of nurses in this specialty area. It would also provide a guideline against which nurses, the public, and health-care agencies could measure a nurse's qualifications.

PROJECT SUMMARY SHEET -- 24

PROJECT TITLE: DEVELOP A SYSTEM OF CERTIFICATION FOR NURSE SPECIALISTS

OBJECTIVE: To increase the number of nurses specializing in diabetic care, and to assure a minimum degree of competence on the part of these nurses.

APPROACH TITLE:

Certification for nurse specialists.

DESCRIPTION OF PROJECT:

A system of certification for diabetes teaching nurses, diabetes nurse practitioners, and diabetes nurse educators should be developed and implemented. Suggested organizations to be involved: The American Association of Diabetes Educators, the American Diabetes Association, and the American Nurses Association.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Involvement of appropriate professional organizations (as indicated above).
2. Assurance of an ongoing program.
3. Funding.

PRESENT STATUS:

No certification procedure is currently in operation.

INPUT REQUIRED:

1. Development of standards for preparation of nurse specialists.
2. $_____for staff, consultant travel.
3. Assurance of an ongoing program.

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FORM OF RESULTS:

Individual nurses would upgrade their performance by having a goal to strive for, and health-care agencies and the public would have assurance of minimal qualifications on the part of nurses providing care as certified specialists.

PROJECT TITLE: DEVELOP STANDARDS FOR PROGRAMS TO PREPARE NURSE SPECIALISTS

OBJECTIVE: To increase the number of nurses specializing in diabetic care and to assure a minimum degree of competence on the part of these nurses.

APPROACH TITLE:

Certification for nurse specialists.

DESCRIPTION OF PROJECT:

Schools of nursing and other institutions of higher learning who feel they can offer the advanced education to a registered nurse to provide them with the skills and knowledge to become an advanced practitioner/clinical specialist in the area of diabetes/endocrinology will need help in developing what these standards of knowledge should be or include. These standards should be developed by an independent group that is qualified to state what these standards are, such as ADA and AADE.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Standards be established that will be acceptable to institutions interested in offering such programs.

PRESENT STATUS:

Programs of varied types are now available with no minimal criteria on which to evaluate their curricula.

INPUT REQUIRED:

Diabetes nurse consultants, who have already prepared themselves in such a role through self-development to be available as consultants to prepare these standards. Suggested organizations to help in preparation of these standards, ADA and AADE.

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FORM OF RESULTS:

This will help programs to develop better courses.

PROJECT SUMMARY SHEET -- 26

PROJECT TITLE: DEVELOP A SYSTEM FOR APPROVING COURSES FOR NURSE SPECIALISTS

OBJECTIVE: To increase the number of nurses specializing in diabetic care and to assure a minimum degree of competence on the part of these nurses.

APPROACH TITLE:

Certification for nurse specialists.

DESCRIPTION OF PROJECT:

Voluntary approval system to the institutions offering preparation for diabetes teaching nurses, diabetes nurse specialists/practitioners, and diabetes nurse educator/consultants. This would provide a mechanism for institutions to have their programs approved, which would make them more attractive to students looking for such an education and guarantee a certain level of quality.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. An agency to do such approval (suggested American Diabetes Association).
2. The criteria for approval developed and supported by those professional and voluntary health agencies involved with diabetes therapy and the diabetic patient.

PRESENT STATUS:

There is no such approval mechanism available for a program offering this type of education.

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INPUT REQUIRED:

1. Development of the standards that a program should meet to receive approval.
2. Funding.

FORM OF RESULTS:

Programs that are offering sound education to the nurse who is seeking to improve his/her education to help maintain and increase the care and welfare (quality of life) of the diabetic individual.

PROJECT TITLE: SUPPORT ADVANCED TRAINING OF FACULTY FOR EDUCATION OF DIETETIC PERSONNEL IN CLINICAL AND COMMUNITY DIETETICS

OBJECTIVE: To generate sufficient numbers of dietetic personnel to educate the patient with diabetes.

APPROACH TITLE:

Manpower development.

DESCRIPTION OF PROJECT:

Training of dietetic educators through training grants to dietitians who wish to advance their knowledge and skills to serve as faculty in programs preparing clinical and community dietitians.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Survey of preparation and need for manpower and training of dietetic educators.
2. Develop curriculum for dietetic educators as a specialty area of dietetics.
3. Identify sources of training grants for graduate training of dietetic educators and stimulate new resources.
4. Establish center of excellence for training dietetic educators.

PRESENT STATUS:

Persons presently in dietetic education have moved into this field by various routes of training and experience, but no specific curriculum has been developed to prepare the dietetic educator as a specialty area in dietetics.

To assure knowledge, skills, and attitudes regarding diabetes and patient education methods, all entry level clinic and community dietitians need more educators trained in these areas.

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INPUT REQUIRED:

Training grants for dietetic educators.

Core curriculum for dietetic educators.

FORM OF RESULTS:

Increased pool of better trained dietetic educators would improve quality and quantity of education in diabetes for clinical and community dietitians.

PROJECT TITLE: INTEGRATING THE DIETETIC COMPONENT INTO THE BASIC PROGRAM OF DIABETES RESEARCH, TRAINING, AND TREATMENT IN THE DIABETES CENTERS OF EXCELLENCE

OBJECTIVE: To incorporate the unique knowledge, skills, and competencies of the dietitian into the research, education, and treatment team in the diabetes center.

APPROACH TITLE:

Core team of the diabetes research education and treatment center.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Develop research in areas associating nutrition and dietary factors to the prevention and treatment and education in diabetes.
2. Establish and evaluate the nutrition and dietetic content of the professional education program of the diabetes center.
3. Demonstrate the role of the dietitian in the model treatment program of the center.

PRESENT STATUS:

Needs to be developed.

INPUT REQUIRED:

Staffing patterns for diabetes centers should specify the dietitian as a member of the core staff.

FORM OF RESULTS:

Delineation of the role of nutrition and diet in the prevention and treatment of diabetes.

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PROJECT SUMMARY SHEET -- 29

PROJECT TITLE: TRAINING DIETITIANS AND NUTRITIONISTS WITH EXPERTISE IN DIABETES

OBJECTIVE: Improve knowledge, skills, and attitudes of practicing dietitians.

APPROACH TITLE:

Amplify training of dietitians/nutritionists in diabetes through the diabetes research, training, and treatment centers.

DESCRIPTION OF PROJECT:

Short term training courses for dietitians in diabetes research, education, and treatment centers.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Develop curriculum of short courses in diabetes for clinical and community dietitians and have approved for continuing education clock hours for registered dietitians.
2. Utilize resources of center to demonstrate role of the dietitian in the diabetes team.
3. Widely disseminate information on course offerings.
4. Periodically evaluate and revise curriculum.

PRESENT STATUS:

Not now available on a regular and systematic basis.

INPUT REQUIRED:

Dietitian in the diabetes team center.

Plan to offer short courses on diabetes for clinical and community dietitians on a continuing and systematic basis.

FORM OF RESULTS:

Continuing availability of short courses in diabetes for upgrading knowledge, skills, and attitudes of dietitians involved with research teaching and tre[illegible] persons with diabetes.

PROJECT SUMMARY SHEET -- 30

PROJECT TITLE: MULTIMEDIA LEARNING MODULES FOR PRACTICING DIETITIANS ON NUTRITION ASSESSMENT, NUTRITION COUNSELING, EDUCATION, AND BEHAVIORAL MODIFICATION FOR PERSONS WITH DIABETES AND THEIR FAMILIES

OBJECTIVE: To improve knowledge, skills, and attitudes of dietitians and nutritionists in practice.

APPROACH TITLE:

Continuing education of practicing dietitians.

DESCRIPTION OF PROJECT:

Develop specifications for a contract for the preparation of multimedia series of learning modules to update practicing dietitians on the various facets of diabetes including pathophysiology, medical concepts, nutritional assessments, educational diagnosis, behavior modification, educational approaches, psyco-social impact role on health care team, and evaluation. A system approach should be applied.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Establish an advisory committee under the continuing education unit coordinated with Diet Therapy and Community Nutrition Sections of the American Dietetic Association in collaboration with the National Diabetes Advisory Council for support and funding.
2. Survey problems and needs of practicing dietitians.
3. Plan project implementation including developing contract specifications. Select project director to coordinate and monitor specifications. Select project director to coordinate and monitor contract.
4. Promote the dissemination of the multimedia package. The learning module would meet requirements for continuing education clock hours for registered dietitians.

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PRESENT STATUS:

No learning modules are now available.

INPUT REQUIRED:

Estimated $250,000 for research and development and planning, coordinating, and monitoring contract and promotion dissemination and evaluation of the learning packages.

FORM OF RESULTS:

First learning modules to provide current conceptual approach to upgrade level of practice of dietitians providing services and education to persons with diabetes and their families.

PROJECT SUMMARY SHEET -- 31

PROJECT TITLE: MODEL CORE CURRICULUM IN DIABETES AND ENDOCRINOLOGY FOR DIETETIC AND NUTRITION STUDENTS IN COORDINATION WITH THE CORE CURRICULUM FOR MEDICINE

OBJECTIVE: To improve the knowledge, skills, and attitudes of dietitians and nutritionists.

APPROACH TITLE:

Basic education of dietitians and nutritionists.

DESCRIPTION OF PROJECT:

At a National Workshop assemble persons with expertise in curriculum development in dietetic education along with those knowledgeable in medical and nutritional aspects of diabetes and its psycho-social impact on patients and families.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Establish a steering committee under the Section on Educational Preparation with representation from Diet Therapy and Community Nutrition Sections of the American Dietetic Association, in collaboration with the National Diabetes Advisory Council for support including funding.
2. Survey of problems in education and practice and assessment of needs.
3. Convene a national working conference to develop a pilot curriculum to field test in selected undergraduate dietetics programs.
4. Conduct regional workshops to orient dietetic educators to implement the diabetes curriculum.

PRESENT STATUS:

No such curriculum is available.

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INPUT REQUIRED:

Estimated $75,000 planning, coordination, implementation of workshop, writing and testing curriculum, and periodically evaluating and revising.

FORM OF RESULTS:

Basic dietetic curriculum in diabetes would standardize and upgrade the level of practice related to diabetes of the entry level dietitian.

PROJECT TITLE: AVAILABILITY AND ACCESSIBILITY OF APPROPRIATE AND APPEALING MEALS FOR PERSONS WITH DIABETES IN INSTITUTIONAL AND GROUP FOOD SERVICE PROGRAMS (SCHOOLS, DAY CARE CENTERS, CAMPS, HOMES FOR THE ELDERLY, MEAL PROGRAMS FOR THE ELDERLY, COMMERCIAL CAFETERIAS AND RESTAURANTS, ETC.)

OBJECTIVE: Improve knowledge, skills, and attitudes of food service managers and personnel.

APPROACH TITLE:

Basic and continuing education.

DESCRIPTION OF PROJECT:

Coordinated preparation of articles, programs, audio tapes, sample menus coordinated with standardized small quantity recipes suitable for diets based on the meal plans and exchange lists commonly used in diabetes patient education.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Identify food service programs in the community serving persons with diabetes who eat away from home.
2. Assess needs and attitudes of food service managers and workers regarding responsibilities for modified meals for diabetics.
3. Identify primary channels of continuing education to food service managers and personnel.
4. Prepare and disseminate materials and information to help food service managers respond to dietary needs of persons with diabetes.

PRESENT STATUS:

Food service managers may or may not be registered dietitians. However, in settings other than hospitals and nursing homes the dietary needs of persons with diabetes are rarely considered.

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NPUT REQUIRED:

Expertise of clinical and community dietitians in orienting and training food service managers.

ORM OF RESULTS:

More appropriate meals for persons with diabetes who must eat away from home.

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PROJECT SUMMARY SHEET -- 34

PROJECT TITLE: DIET COUNSELING SERVICES IN THE COMMUNITY

OBJECTIVE: To ensure adequate nutrition counseling for each patient with diabetes.

APPROACH TITLE:

Generate sufficient numbers of dietetic personnel to educate the patient with diabetes.

DESCRIPTION OF PROJECT:

Explore and promote personnel and services in diet counseling for the non-hospitalized patient: such as out patient departments of hospitals, neighborhood health centers, local health departments, school health services, HMO's, group and private practices of physicians, and dietitians.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Needs and resource assessment.
2. Train dietetic personnel for counseling and education of the patient with diabetes in relation to other health practitioners in the community health team.
3. Explore and establish funding utilizing such resources as may become available through third party payment.
4. Promote establishment of diet counseling and education services for non-hospitalized patients that are accessible near where they live.

PRESENT STATUS:

Insufficient numbers and quality because of undependable funding.

INPUT REQUIRED:

Third party reimbursement for patient education including diet counseling.

PROJECT TITLE: DEVELOPMENT OF MINIMAL STANDARDS IN THE CARE OF THE CHRONICALLY ILL BY THE SOCIAL WORKER

OBJECTIVE: To improve the training of social workers at whatever level of performance, to work more effectively in social agencies or on health teams wherever these exist, to deliver quality service to the chronically ill, and specifically the diabetic patient.

APPROACH TITLE:

Improving the training of social workers to work with the chronically ill.

DESCRIPTION OF PROJECT:

Develop minimum standards for the training of social workers so that they are prepared to work with chronically ill persons.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. The cooperation of the National Association of Social Workers and other national voluntary agencies which employ social workers.
2. The cooperation of the existing schools of social work and other training centers which train social workers on the graduate-postgraduate and undergraduate levels.
3. The cooperation of funding to do the research and implement the change in curricula.
4. The cooperation of other health professionals to assist social workers to define what medical information is needed, and to convey this education to the trainees in this field.
5. Coordination by the National Diabetes Advisory Board.

PRESENT STATUS:

In all levels of training there is little or no emphasis on the social, economic, and emotional problems arising from or related to chronic illness and disability as they affect the individual,

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his family, and the community. Other health professionals are presently more or less unaware of the usefulness of social workers as integral members of the health team.

INPUT REQUIRED:

1. Review of available socio-economic elements in the curriculum of diabetes offered to health professionals.
2. Cooperation of health professionals and social work leaders.
3. Job opportunities available to employ these specially trained social workers to work with chronically ill.

FORM OF RESULTS:

1. Improved services to the diabetic because of more and improved manpower on the health care team.
2. Implementing the acceptance of the social workers as an adequately prepared member of the professional health team.
3. There would be more time available for other health care professionals to carry out their roles because social workers would be coordinating the teams and resolving social and emotional problems attending chronic illness.

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Report of the

National Commission on Diabetes

to the Congress of the United States

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Volume III

REPORTS OF COMMITTEES, SUBCOMMITTEES, AND WORKGROUPS

Part 6

WORKGROUP REPORTS

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service National Institutes of Health

"The National Diabetes Mellitus Research and Education Act" (Public Law 93-354), signed by the President on July 23, 1974, directed the appointment of a National Commission on Diabetes whose charge was to formulate a long-range plan of research and education to combat diabetes mellitus. The Commission submitted its report to Congress on December 10, 1975.

REPORT OF THE NATIONAL COMMISSION ON DIABETES

Volume I - The Long-Range Plan to Combat Diabetes

Volume II - Contributors to the Deliberations of the Commission
- Part 1 - Public Testimony (Public Hearings 1-5)
- Part 2 - A. Public Testimony (Public Hearing 6 and Interviews)
  - B. Biographical Sketches of Commission Members and Consultants

Volume III - Reports of Committees, Subcommittees, and Workgroups
- Part 1 - Scope and Impact of Diabetes (I)
- Part 2 - Scope and Impact of Diabetes (II)
- Part 3 - Etiology and Pathology of Diabetes
- Part 4 - Treatment of Diabetes
- Part 5 - Diabetes Education for Health Professionals, Patients, and the Public
- Part 6 - Workgroup Reports
  - A. Diabetes Research and Training Centers
  - B. Veterans Administration Programs for Diabetes
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  - D. National System for Diabetes Data Resources
  - E. Federal Resources

Volume IV - Supporting Materials to the Commission Reports
- A. Summary of Federal Health Legislation Pertaining to Diabetes
- B. Summary of Diabetes Program Funding
- C. Special Reports

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Report of the

National Commission on Diabetes

to the Congress of the United States

Volume III

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Part 6

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service National Institutes of Health
DHEW Publication No. (NIH) 76-1032

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VOLUME III

REPORTS OF COMMITTEES, SUBCOMMITTEES, AND WORKGROUPS

PART 6

WORKGROUP REPORTS

A. Report of the Workgroup on Diabetes Research and Training Centers

B. Report of the Workgroup on the Veterans Administration

C. Report of the Workgroup on the Center for Disease Control

D. Report of the Workgroup on a National System for Diabetes Data Resources

E. Report of the Workgroup on Resources

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Report of the
WORKGROUP ON
DIABETES RESEARCH AND TRAINING CENTERS
to the
National Commission on Diabetes

Chairman:

Philip W. Felts, M.D.

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This is the third and final report to the Commission having to do with "Diabetes Research and Training Centers." In its present form, this report reflects the synthesis of all the views and opinions of the participants in the three Workgroups on Centers, various consultants to other workgroups -- especially those of the Subcommittees on Education and Treatment -- select members of the Commission's staff, and the members of the Commission itself.

Although this final report still constitutes a recommendation to the full Commission, its phraseology is such that it might also be considered a preliminary draft of that portion of the Commission's report to Congress dealing with Centers.

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I. DIABETES RESEARCH AND TRAINING CENTERS

Pursuant to the mandate implied in Public Law 93-354 under the title: "Diabetes Research and Training Centers," the National Commission on Diabetes has deliberated and debated the potential of such Centers and their proposed and envisioned functions. Having so done, the Commission does wholeheartedly concur with Congressional intent, as perceived, and hereby recommends, as but one component of the long-range plan for diabetes, that such Centers be forthwith established and perpetuated according to the guidelines which follow. These guidelines explicate the purpose, spirit, and intent of such Centers as conceived by the Commission as well as the temporal and fiscal requirements to implement such a program for Centers.

A. PURPOSE OF THE CENTERS

Diabetes Research and Training Centers are charged with two principal and primary functions:

1. Performance of the highest quality research in diabetes and its management; and

2. Generation of the most competent professional personnel for diabetes research and for the care of the diabetic.

With respect to this latter charge, the training-and-education functions of the Centers comprise two related and successive phases: the earlier phase in which emphasis is given to intensive training of health professionals in the Centers and to development of innovative educational programs for patients and the public; followed by the later phase in which Centers, once mature and having generated the requisite professional personnel and having designed and evaluated training and education programs, then broaden their sphere of influence and effectiveness by developing outreach programs through cooperation, coordination, and collaboration with local, regional, state, and federal agencies. The ultimate objective of such outreach programs is to better the care and quality of life, either directly or indirectly, for all diabetics in the United States.

B. ACTIVITIES OF THE CENTERS

Diabetes Research and Training Centers are to be academically based (which means they utilize the facilities of a single university-affiliated

medical center, or are formed by a consortium of cooperating institutions which include the university-affiliated medical center). These Centers provide the organized structure to accomplish and facilitate the following five activities:

1. Basic and clinical research in the fields of diabetes and its management

   Research, whether basic or clinical, in education and/or treatment, means any bona fide hypothesis-testing or careful, systematic study or investigation undertaken to establish facts or principles. Management includes diagnosis and treatment and the latter implies education of the diabetic patient. In the management of diabetes, emphasis is given to the "team approach" in the care of the diabetic patient. Diabetes here and throughout these guidelines is to read: "diabetes mellitus and related endocrine and metabolic disorders and the complications from such disease or disorders."

2. Training of post-doctoral fellows for research in diabetes and its management

3. Training of health professionals in diabetes and its management

4. Training of practitioners of the health professions in diabetes and its management in the form of continuing education and information programs

Training in all three instances means training-and-education of health professionals, and the term health professionals includes physicians and allied health personnel and students in either group; and

5. A model education-treatment facility for the diabetic patient for the purpose of promoting the above four areas of endeavor

C. ELIGIBILITY REQUIREMENTS

The institution or consortium wishing to qualify for the Centers program, and thus its support, must have either:

1. Active programs of excellence in each of the five areas designated above which, with Center support, can be substantially expanded; or

2. Active programs of excellence in two or more of the areas designated above of which a well-established high-quality research program is an integral part. For those other areas

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not yet operational, a detailed plan for the development of such activities is an essential part of application for the Centers program.

Applications should, in addition, include a feasible, long-range plan for the development of outreach programs. All applications must have the full endorsement of the sponsoring academic institution and all plans must be compatible with the institution's internal academic policies.

D. BUDGETARY ITEMS ELIGIBLE FOR CENTER SUPPORT

1. Salary for key professional personnel involved in research programs;

2. Salary for key health professionals involved in training programs;

3. Salary for administrative personnel of the Center;

4. Supplies, equipment, and materials for Center-wide activities and services;

5. New research initiatives on a pilot basis until such programs or projects mature to the point of competing on a nation-wide level for research support through the peer review system;

6. Funds for the development or expansion of the Center-based educational facility for the diabetic patient;

7. Patient care costs directly related to research;

8. Travel costs directly related to Center activities and services; and

9. Other expenses clearly specified and directly related to Center activities and services.

E. BUDGETARY ITEMS NOT ELIGIBLE FOR CENTER SUPPORT

1. Stipends for post-doctoral trainees;

2. Stipends for health professionals-in-training;

3. Long-term support of basic research or clinical research programs or projects;

4. Patient care costs unrelated to research; and

5. Diabetes detection programs.

F. CENTERS IN THE LONG-RANGE PLAN FOR DIABETES

Diabetes Research and Training Centers have the dual mission of contributing to the search for the eventual cure and prevention of diabetes through research and of contributing to improvement of the care and quality of life for diabetics until that time through both research and training of adequate numbers of capable, qualified health professionals caring for diabetics in this country.

To promote the latter, Centers are expected to develop long-range plans for community and regional interaction (including training and education outreach programs) in cooperation with and under the guidance of the Center for Disease Control and in collaboration with relevant municipal, county, and state health agencies and medical associations, and in coordination with appropriate voluntary health agencies.

Diabetes Research and Training Centers are also encouraged to develop a multiplicity of funding and financial support for their various programs through all applicable federal agencies, state and local sources, charitable donations and the foundations, and through third-party payment for patient care services.

These Centers are not expected to be identical with one another with respect to their research and training activities and services. A given Center may wish to concentrate its efforts and interest in the natural history of diabetes in the child while another may emphasize basic pathophysiology of diabetes and its complications. Although not necessarily identical, the Centers are expected to share with each other and with the diabetes community at large the best that each has to offer. All other considerations being equal, these Centers are to be geographically dispersed over the United States based on population density.

The Center award implies committed support for not less than five years with annual evaluation of progress. Thereafter, support may continue with competitive renewal at intervals not to exceed five years.

G. AUTHORITY FOR THE CENTERS PROGRAM

Public Law 93-354 directs the Secretary of Health, Education and Welfare to "provide" for the implementation of the Centers program in a manner "consistent with applicable recommendations of the National Commission on Diabetes...." The Secretary should be advised that the

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foregoing guidelines for the Centers program are to be considered "applicable recommendations." In addition, the Commission recommends that the Secretary delegate the responsibility for and supervision of the Centers program to the Director of the National Institutes of Health since its Division of Research Grants provides the most effective peer review system for biomedical research. Such is essential to this Centers program.

H. TIME-TABLE FOR IMPLEMENTATION OF THE CENTERS PROGRAM

January 1976	Formulation of regulations with internal review by HEW, to be followed by publication of these in the Federal Register for public comment and criticism, followed by final revision, review, and publication;
July 1, 1976	Announcement of the program with promulgation of the "Request for Application" (the RFA's);
October* 1976	Initial deadline for receipt of applications for the program;
February 1977	Peer review by Special Study Section for the Centers program;
May 1977	Action by the Advisory Council; and, finally,
July 1, 1977	Activation of the program with funding of the initial Centers.

*Receipt dates thereafter are February, June, and October. This time-table conforms to the revised review schedule of NIH to become effective January 1, 1976, to coincide with the change in the federal fiscal year on October 1, 1976.

I. PROJECTED BUDGETARY REQUIREMENTS FOR IMPLEMENTATION OF THE CENTERS PROGRAM

The number of Diabetes Research and Training Centers should be approximately 15, based upon the best estimates of currently available and projected manpower and upon regional needs, that number being reached incrementally over the first three years of the program.

The support for each Center should be in the range between $500,000 and $1 million per annum, based upon the best estimates of projected fiscal requirements for such a Center.

Thus, the projected entire budgetary requirements for the Centers program is:

Direct Costs:

Fiscal Year ending September 30, 1977	$ 5,000,000
Fiscal Year ending September 30, 1978	10,000,000
Fiscal Year ending September 30, 1979	15,000,000
Fiscal Year ending September 30, 1980	15,000,000
Fiscal Year ending September 30, 1981	15,000,000

Total Costs Including Indirect Costs:

Fiscal Year ending September 30, 1977	$ 8,000,000
Fiscal Year ending September 30, 1978	12,000,000
Fiscal Year ending September 30, 1979	20,000,000
Fiscal Year ending September 30, 1980	20,000,000
Fiscal Year ending September 30, 1981	20,000,000

II. RECOMMENDATIONS

A. The National Commission on Diabetes recommends to the Congress that the section of Public Law 93-354 entitled "Diabetes Research and Training Centers" be forthwith implemented according to the guidelines set forth in this report.

B. The National Commission on Diabetes recommends to the Congress that Public Law 93-354 be so amended that authorization of funds for the program for Diabetes Research and Training Centers conforms to the projected total costs set forth in this report and to the dates and duration of the period of authorization recommended in this report.

C. The National Commission on Diabetes recommends to the Congress that appropriation of funds for the program for Diabetes Research and Training Centers be duly authorized to conform to the above recommended amendment.

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III. APPENDICES

APPENDIX A

POSITION PAPER ON CENTERS AT THE UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE

Dr. Russell Ross

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POSITION PAPER ON CENTERS AT THE UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE

Dr. Russell Ross

The School of Medicine has several missions to perform within the sphere of medical education, and thus the objectives of any centers that are developed must clearly relate to the role and purposes of the School of Medicine. These encompass the education and training of physicians, paramedical personnel, and graduate and undergraduate students. Active research programs in the basic and clinical sciences are an integral part of such an educational mission, and should include efforts at understanding fundamental biological phenomena at the molecular and cellular levels, as well as clinical phenomena more directly applicable to the revelation of the etiology, pathogenesis, prevention, and treatment of disease.

A major medical center such as that at the University of Washington should provide opportunities for exposure of students to a wide range of pathology at the clinical level, and to participation in research efforts at all levels. The School of Medicine, with its diverse faculty composed of a wide spectrum of excellence in the basic and clinical sciences, has the opportunity to bring together in collaborative efforts the talents of the basic scientist and the clinician from the areas of medicine in a broad-based attack upon those disease entities most important to man.

The development of centers to pursue research and training in special areas of interest such as cancer, cardiovascular disease, diabetes, and genetic disease, to mention but a few, offers the opportunity for improved communication and meaningful collaboration between disciplines in approaching a better understanding and possible solutions to many of the common but complex illnesses that face our society.

The possibility of developing new multidisciplinary centers will continue at the University of Washington School of Medicine as funds become available to provide support for construction and operating costs. Careful consideration should be given in each case as to the desirability of pursuing an application to develop any center, which should only be undertaken if their development will enhance the long-range plans of the School of Medicine.

The principal reasons for supporting the development of centers at this institution are:

1. The development of centers will provide an opportunity for members of the faculty with complementary and similar interests to work more closely together.

2. The construction of centers will provide additional research and training space for programs that are obviously of national interest and in which our faculty have an interest.

3. The encouragement of interdisciplinary and multidisciplinary research for the solution of major health problems permits study in depth and breadth which in many instances would otherwise be fragmented. These efforts make possible coordinated comprehensive studies entailing simultaneous measurements of the many variables in the same animal or patient.

4. Research centers also encourage collaboration among basic medical scientists, engineers, and physical scientists as well as a variety of clinicians, encouraging the basic scientists to work in clinical departments and vice versa.

Several disadvantages of center development must also be kept in mind by the faculty lest they outweigh the advantages.

1. The establishment of autonomous and uncontrolled units could potentially cause problems with existing administrative structures.

2. The separation of the centers from the teaching role of the university, which need not occur.

3. Potential overcommitment on the part of the faculty and subversion of their primary functions related to teaching and service as well as to research.

4. The formation of an umbrella over scientific research, complicating peer review at the national level and potentially conducive to support of mediocre research.

5. The constriction and restraint upon individual investigators. This can be prevented by a clear allocation of the resources of the center at the time that a center is organized, and by the establishment of an appropriate advisory committee whose makeup will be detailed below. The role of this advisory committee would be to serve as a check and balance on the authority of the center director, and to ascertain that the center, at all times, maintains its obligations to the university and its faculty in carrying out its mission.

The university and its School of Medicine do not seek to expand their facilities primarily by the creation of institutes and centers, but when support is available for programs which are of interest to the faculty, the long-range plans of the school, and which meet the needs of the

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university as a whole, it seems appropriate to pursue the development of such centers. However, development of multidisciplinary centers should be pursued only when there is a clearly established need that cannot be easily met within existing structures in the School of Medicine.

Definitions

Centers at the School of Medicine will usually develop by one of three potential routes. These are:

1. A faculty or department initiated program project.

2. A faculty or department initiated demonstration program -- supported in various ways financially until it reaches maturity.

3. A Dean of Medicine sponsored development of a new center, via the Office of the Associate Dean for Scientific Affairs in co-operation with various members of the faculty, where the program originally emanates from and is coordinated by the Office of the Dean of the School of Medicine.

In terms of their relationship to departments and schools within the university, centers will take one of three forms. These are:

1. Completely intradepartmental centers.

2. Interdepartmental centers, where the majority of the activities of the center fall within the realm of one department, but include activities involving faculty members and potentially facilities of several different departments within a single school.

3. Interdepartmental/interschool centers involving faculty members and facilities widely throughout the University of Washington. These may or may not be principally involved within the Health Sciences Center.

Lines of Responsibility

The principal responsibilities of the director of a center are as follows. In the case of the first two types of centers, i.e., the completely intradepartmental center or the interdepartmental center having a majority of its activity in a single department, the center director would have primary responsibility to the department chairman and ultimately to the Dean. By establishing these lines of responsibility, appropriate opportunity is presented for the center director to negotiate with his

chairman as to the space, teaching and service responsibilities, and other time commitments for each of the individuals in the center. In the case of individuals outside of the parent department, the center director would negotiate similarly with the chairmen of the parent departments of each of the individual faculty members within the center.

In the case of the third type of center, i.e., the interdepartmental/ interschool center, covering a broad range of faculties and facilities, the center director would have principal responsibility to either the Dean of the School of Medicine, if the majority of the activity lies within that school, or to the appropriate Deans, if more than one school were involved.

Evaluation of Center Proposals

Applications for new centers within the School of Medicine should be reviewed through the following process. As soon as a center proposal begins to be developed, this should be communicated to the Associate Dean for Scientific Affairs, who will ask the Administrative Board for Centers to evaluate the proposal and to determine its impact upon the programs of the Medical School and the university. The Associate Dean for Scientific Affairs will chair this committee and expedite the evaluation so that a recommendation can be made to the Dean of the School of Medicine. In this manner, proposals deemed to be desirable for further development can be expedited so that they can be submitted to the appropriate agency as early as possible.

Planning of a Center

The final decision to plan a center should either emanate from the Office of the Dean or receive the approval of the Dean. Once such a decision has been made, it will be important for the individuals bearing prime responsibility for the preparation of the plans to notify all relevant department chairmen before faculty members of their departments are asked to commit themselves or their departmental assets to a center program. Such notification could occur in the first case by a written announcement, and after specific individuals are identified, by consultation between the center planner or director and the appropriate department chairman.

Advisory Committee

Each center will have an advisory committee. In the case of intra-departmental centers, the advisory committee can be derived fully from the members of that department. In the case of centers that are

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interdepartmental or interschool, the members of the advisory committee should be derived from faculty with appropriate expertise relevant to the mission of the center, and will be designated by the Dean upon recommendation of the director of the center after consultation with the chairmen of the departments involved in the center.

Teaching, Patient Care, and Service

Members of the faculty of the University of Washington School of Medicine have a responsibility to participate in the teaching and/or patient care and/or service efforts. The respective department chairmen and center directors will, by negotiation, determine how much each individual who works in a center will devote to teaching and service regardless of the source of salary support.

Appointment to Centers

Faculty participating in center activity should have academic appointments in the appropriate academic departments. Such faculty will be responsible to their department chairman for departmental teaching, service, and research programs. No academic appointments will be made in the center as such.

The overall activity of any faculty appointed to a center including their time commitments to various faculty duties, the administrative support provided them, and the space committed, should be agreed upon by the center director and the department chairman in advance of the faculty member's appointment to the center.

New faculty members who are brought to the university on the basis of their potential to play a primary role in the activities of a center should be appointed after a joint search by both the director of the center and the chairman of the appropriate department or departments or their designees, but not before consultation with the appropriate chairman. The chairman of a specific department may be the prime mover in seeking and attracting appropriate faculty to participate in a center after consultation with the director of the center.

Grant Application

Grant applications by individual members of the faculty who are located in centers will be submitted in the name of the individual faculty member and handled as they are in other areas of the School of Medicine, with review by the director of the center, and in conformance with existing departmental review patterns. It is assumed that each center

will have a central operating grant, and that the center director will be responsible for this grant and its budget. Such a core grant will be used for general research and administrative purposes for the center, as well as for special coordinative activities. This budget should also be available to the director of the center and his advisory committee to be used to stimulate new collaborative research efforts and research programs in new, important areas significant to the mission of the center.

Space Assignment

Space in an interdepartmental center should be arranged between the director and the appropriate department chairman after consultation with the advisory board. Where adequate space does not exist within the appropriate department or departments, the appropriate department chairman should recommend to the Dean's Office that additional space be assigned that department for use of specific projects or by specific individuals whose activities are appropriate to the stated purposes of the center.

Space in interdepartmental/interschool centers will be initially assigned by the appropriate Dean or Deans of the schools involved. Space allocations within the center will be made by the center director in consultation with his administrative board. Additional space will be arranged between the center director and the appropriate Dean as recommended by the center advisory committee.

Teaching facilities and conference rooms in centers should be available for use by the School of Medicine in its academic functions after giving first priority for the center for the use of these facilities in meeting its mission.

Center Director

The director of a center must be able to provide leadership and guidance in the establishment of new research programs and in establishing circumstances that help to bring together appropriate scientists to work together on problems of common interest. He should seek effective and improved means of communication and collaboration, and through his efforts provide opportunities for such activities. He must seek new avenues and approaches to solve problems and provide funds and facilities for pilot programs that could lead to new directions in research. In addition, he should provide an efficient, noncumbersome administrative organization that facilitates the work of the center members. It is important that he maintain communication not only within his center, but between the center and the faculty and administration of the School of Medicine as well. He, like all other center members, will have a faculty appointment in a department of the school. His duties and responsibilities in that department

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will be arrived at through negotiation with the chairman of his department and the Dean.

Center Review

Once a center has been established, its activities and accomplishments should be reviewed annually by the director and his advisory board and by the Administrative Board for Centers appointed by the Dean of the School of Medicine. The latter should examine the impact of the center and its programs on the objectives and missions of the School of Medicine. In the event that such a review reveals that a center is not functioning to the best interests of the school, appropriate recommendations should be made to the Dean to alter its operation or if necessary to abolish the center.

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APPENDIX B

DIABETES-ENDOCRINOLOGY CENTERS
of the
NATIONAL INSTITUTE OF ARTHRITIS, METABOLISM, AND DIGESTIVE DISEASES

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MARYLAND 20014

DIABETES-ENDOCRINOLOGY CENTERS
of the
NATIONAL INSTITUTE OF ARTHRITIS, METABOLISM, AND DIGESTIVE DISEASES

INTENTION

The National Institute of Arthritis, Metabolism, and Digestive Diseases announces its intention to support a number of Diabetes-Endocrinology Centers geographically dispersed throughout the United States. During the next year or two, only centers in which the research emphasis is in the area of diabetes will be supported. The scientific community will be informed when the support is expanded to centers with other areas of research emphasis.

Center grants will be limited to institutions where there is established ongoing research in diabetes and will be used to strengthen and to permit further development of these research efforts. The general characteristics of a center grant and the criteria for review of applications are presented in the following portions of the announcement.

SUBMISSION OF APPLICATIONS

In order that applications may be eligible for funding during the present fiscal year, a special deadline of January 1, 1973 has been established for the receipt of applications for such center support. To facilitate the planning of the review of these applications a "letter of intent" to submit an application should be sent to the Diabetes Program Director (address below) by November 15, 1972. Subsequently, the established NIH deadlines for receipt of applications will apply, i.e., June 1, October 1, etc.

Additional information and applications may be obtained by writing:

Diabetes Program Director
Extramural Programs
National Institute of Arthritis,
Metabolism, and Digestive Diseases
National Institutes of Health
Westwood Building, Room 626
Bethesda, Maryland 20014

DEFINITION OF CENTERS

Centers for research in diabetes will be established to facilitate, improve coordination in, or otherwise enhance the productivity of the research environment of the recipient institution. These centers will provide core resources and services at an institution where a broad and substantial volume of excellent diabetes research already exists.

The centers are conceived as supporting scientific personnel, administration, and central support services to accomplish research goals that would not otherwise be possible. The center grant is not intended to provide direct support for established ongoing research projects.

Funds to initiate projects by new investigators and for exploratory or feasibility studies may be supported by a center grant. Such funds may be requested each year of the center grant but support of any particular new project will be limited to a three-year period, at which time the project should compete for a regular research grant.

PROGRAM ORIENTATION

There is no prescribed model for a Diabetes-Endocrinology Center. A center should encompass a unique and substantial research program that has already developed as a result of the efforts of the investigators and the institution's particular resources and strengths.

BUDGET CATEGORIES

The following types of items and activities may be included in the budget for a center grant:

(1) Salaries and fringe benefits for:

Principal Investigator
Key research personnel
Newly recruited professional personnel
Research associates
Administrative assistant to the Principal Investigator

(2) New research initiatives as discussed above

(3) Consultant services

(4) Equipment used in center-wide activities

(5) Supplies used in center-wide activities

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(6) Central support services, including:

a. Maintenance and repair of scientific equipment

b. Animal care

c. Research support services such as central computing facilities and specialized libraries

d. Research-related patient costs

e. Center-related publication costs

f. Short-term workshops and seminars

(7) Travel directly related to the center

(8) Necessary renovation costs

(9) Other expenses which are clearly specified and justified

Training stipends will not be a portion of the budget of a center.

APPLICATION FOR CENTER GRANTS

The application should include a description of:

(1) Ongoing fundamental and clinical research projects and program projects related to diabetes, including amoung and duration of committed support

(2) Current diabetes-related collaborative research within the institution

(3) Academic positions and major research interests of the Principal Investigator and other professional staff who would participate in center activities

(4) Laboratory and clinical facilities which are available for diabetes-related research projects

(5) The existing patient load of the institution, including a number of diabetic and total patients

(6) Present and potential research and other training opportunities of the center. It is hoped that the center will strengthen the training opportunities of the involved departments with the prospect of interdisciplinary research training.

(7) The long-term research objectives of the center as well as a plan for accomplishing these objectives

(8) The purpose of all requested funds, including those for new initiatives, in relation to the research activities of the center

(9) A written commitment, signed by an authorized official of the institution, of the parent institution to the proposed center and its administrative support of the center.

PRIMARY CRITERIA UPON WHICH A CENTER GRANT APPLICATION WILL BE REVIEWED

The following criteria will be considered in review of an application:

(1) The presence at the institution of a recognized leader in diabetes research who will serve as Principal Investigator

(2) Interest and commitment of senior investigators to the center's research mission

(3) History of development of one or more diabetes research projects to a program project or its equivalent and further development to a stage justifying center or core support

(4) Scientific merit of ongoing fundamental research and clinical investigation

(5) Clarity and feasibility of diabetes research objectives of the center

(6) Evidence for a multidisciplinary and interdepartmental approach to the study of problems in diabetes or potential for its development

(7) Availability of existing beds and facilities equivalent or potentially equivalent to an NIH-supported general clinical research facility

(8) Potential for training postdoctoral fellows in diabetes research, as evidenced by the merit of ongoing research projects and/or an active diabetes-endocrinology training grant

(9) An Advisory Committee to assist the Principal Investigator in planning and evaluating new initiatives and to participate in decision making related to the center. This committee should be composed of senior professional personnel in the center and/or consultants within or without the applicant institution.

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REVIEW OF APPLICATIONS

A center grant application, prepared on Form PHS 398 "Application for Research Grant," will be reviewed by a special study section of the Division of Research Grants, composed of NIH consultants, and by the National Arthritis, Metabolism, and Digestive Diseases Advisory Council. A grant-supported center will also receive continuing review and evaluation by NIH staff and consultants.

Applications for the direct support of individual research projects, program projects, training grants, and fellowships will be reviewed in the usual fashion by appropriate initial review groups and by the National Arthritis, Metabolism, and Digestive Diseases Advisory Council.

Dated: September 27, 1972

R. W Lamart Hawes

G. Donald Whedon, M.D.
Director
National Institute of Arthritis,
Metabolism, and Digestive Diseases

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APPENDIX C

NIH GUIDE

FOR GRANTS AND CONTRACTS

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NIH GUIDE for GRANTS and CONTRACTS

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Vol. 2, No. 4, July 2, 1973

GUIDELINES FOR ESTABLISHING AND OPERATING CONSORTIUM GRANTS

POLICY

1. *PURPOSE* The purpose of this issuance is to provide guidelines for the development of a consortium grant when the institutions involved believe such an arrangement to be necessary or preferred over a traditional project grant made to a single institution. These guidelines are intended to aid in the establishment of a consortium grant with a sound administrative base among the participating institutions and between the NIH awarding unit and the grantee institution.

2. *BACKGROUND* In the early 1970's, NIH began to receive a small number of research grant applications in which support was sought for a single project which involved two or more institutions through various cooperative arrangements. These guidelines have evolved from experience with the first consortium grants awarded and have been developed through cooperative efforts of the grantee institutions and the NIH in recognition of problems peculiar to these particular grants.

3. *APPLICABILITY* This policy is applicable to any NIH grant-supported research project which embodies the characteristics of the consortium grant as defined below.

4. *DEFINITION* A consortium grant is defined as: A grant to one institution in support of a research project in which the program is being carried out through a cooperative arrangement between or among the grantee institution and one or more other institutions (profit or non-profit) which are administratively independent of the grantee. The involvement of the other institutions may be in the substance of the scientific project, or may be that of providing a specified service under a fee-for-service or contractual arrangement, or both. Examples of such projects are:

a. Single grantee project in which investigators at two or more independent organizations carry on various phases of the principal activity of the project.

b. Single grantee project in which cooperating institutions provide essential services or common data information for the project.

The GUIDE is published at irregular intervals to provide policy, program, and administrative information to individuals and organizations who need to be kept informed of requirements and changes in grants and contracts programs administered by the National Institutes of Health.

5. *POLICY* The NIH may make an award for the support of a project to a grantee institution on behalf of a named principal investigator even though one or more institutions other than the grantee are cooperating in the project by carrying on various parts of the planned activity. A certification must accompany such applications indicating that appropriate officials in each cooperating institution in the consortium arrangement, as well as the formal applicant institution official, have reviewed the application or at least appropriate parts of the applications, and endorse its submission.

6. *CONDITIONS OF APPLICATION AND AWARD*

a. Agreement prior to application submission Prior to submission of an application for a consortium grant the applicant institution and all cooperating institutions should thoroughly explore and reach at least tentative agreement regarding scientific, administrative, financial, and reporting requirements for such grants.

b. Application preparation The same application forms will be used as for other types of research proposals. However, for such consortium arrangements the application must include additional information, such as:

(1) A list of all proposed performance sites both at the applicant grantee institution and at the participating institutions.

(2) A separate detailed budget for the initial and future years for each institution and, where appropriate, for each project unit within each institution.

(3) A composite budget for all program units in all institutions, for each year, as shown under (2) above.

(4) A detailed explanation of the arrangements between the principal investigator and the responsible persons at the cooperating institutions to direct and monitor the research effort.

c. Written agreement prior to initiation of the project The grantee institution should formalize in writing with each cooperating institution the tentative agreement negotiated prior to receipt of the award. The agreement will specify the operational guidelines for control and direction of the research effort to ensure compliance with all pertinent Federal regulations and policies and to facilitate a smoothly functioning cooperative venture. A copy of all such written agreements will be provided to the NIH awarding unit for its records.

(1) Scientific Considerations The agreement should identify the principal investigator and the responsible persons at each cooperating institution and describe their responsibilities in the project. Specific procedures for monitoring and directing the research effort should also be delineated.

(2) Fiscal Considerations The agreement should cite specific procedures to be followed in reimbursing participants for their effort and should include dollar ceiling, the time schedule and method of reimbursement, the type of supporting documents required for reimbursement, and procedures for review and approval of expenditure of grant funds at each institution.

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(3) Administrative Considerations In instances where policies of cooperating institutions differ from those of the grantee institution, particularly in such areas as travel, travel reimbursement, salaries, and fringe benefits, a determination should be made and entered into the agreement as to which policies will prevail. Any such policies must not be in conflict with those of DHEW-NIH.

d. Assurances Required by DHEW-NIH The grantee institution has the specific responsibility for all required assurances. To make sure of responsiveness on the part of the cooperating institutions, the grantee institution should incorporate an understanding concerning the assurances listed below as a part of the formal written agreement.

(1) Care and Treatment of Laboratory Animals Each cooperating institution using warm-blooded animals in the grant-supported project will comply with applicable portions of the Animal Welfare Act (PL 89-544 as amended) and will follow the guidelines prescribed in DHEW Publication No. 72-23 (NIH), "Guide for the Care and Use of Laboratory Animals."

(2) Civil Rights and Equal Employment Opportunity Each cooperating institution must comply with Title VI of the Civil Rights Act of 1964, and Executive Order 11246. The grantee must ensure that all cooperating institutions have a valid Assurance of Compliance with the Civil Rights Act of 1964 on file with the DHEW (Form HEW 441) and, if a contract is entered into, the contract will include paragraphs (1) through (7), Part II, Subpart B, Section 202, Executive Order 11246.

(3) Protection of Human Subjects The grantee institution and the cooperating institutions should refer to DHEW Publication No. (NIH) 72-102, "The Institutional Guide to DHEW Policy on Protection of Human Subjects," and specifically Section B, "Special Assurances," p. 13 et seq. In addition to assuring that initial requirements for protection of human subjects are met in agreements between the grantee institution and the cooperating institutions, procedures also must be established to assure continued monitoring and compliance with these requirements during the course of the project.

(4) Patents and Inventions The fact that two or more institutions share in the grant-supported project does not alter the grantee institution's responsibilities concerning patents and inventions. The grantee institution should obtain appropriate patent agreements to fulfill the requirements from all persons who perform any part of the work under the grant and may be reasonably expected to make inventions. The grantee should insert into each such written agreement a clause making the patent and inventions policy applicable to each cooperating institution and its employees. Agreements should also be obtained by the grantee to govern disposition of rights to inventions resulting from screening compounds synthesized under the grant.

(5) Student Unrest Provisions Each cooperating institution will be responsible for carrying out the provisions relating to remuneration from grant funds to any individual who has been engaged or involved in activities described as "student unrest." (Section 407 of the DHEW Appropriations Act each year since FY 1970.)

(6) Any other assurance normally required of the grantee institution for the program in question is also required of the cooperating institutions.

7. *ELIGIBLE COSTS*

a. Direct costs The costs discussed below are those which are most frequently the subject of inquiry and do not represent a complete list of allowable costs. Any cost category that under NIH policy is an allowable direct cost category for the grantee institution may also be requested on behalf of the cooperating institution. The policies related to grant expenditures for research projects generally apply to consortium grants without exception.

(1) Alterations and renovations Total A & R costs for the project (including the grantee and the cooperating institutions) may not exceed the amount approved and awarded by the NIH or the lesser of $75,000 or 25% of the total direct costs (exclusive of patient care costs) reasonably expected to be awarded for the entire project period. Rebudgeting by cooperating institutions for A & R costs in excess of the amount approved and awarded for that purpose will require prior approval from the grantee institution.

(2) Patient care costs The agreement among the participating institutions should include clauses pertaining to the following:

(a) Recognition that (1) the NIH is not obligated to award additional funds for patient care costs over the original authorized level; (2) the amount of patient care costs awarded for each institution is to be viewed as a ceiling amount for that instituion; (3) all rebudgeting in or out of the patient care cost category at a cooperating institution must be approved in advance by the grantee institution; and (4) the use of funds for patient care costs when patient care at that institution on this project has not previously been approved by the NIH requires prior approval by the NIH awarding unit.

(b) Requirement that charges to the grant be made according to the cooperating institution's negotiated rate agreement with DHEW, or if no agreement exists, be consistent with charges for all other patients.

(c) Statement that recovery of patient costs from a third party, e.g., health insurance, be attempted (whenever appropriate) for routine patient care; and

(d) Designation of a specific individual(s) to determine when a subject or patient shall enter the protocols of the project and therefore officially become a "research subject or patient."

(3) Salaries, wages, and fringe benefits The policies governing salaries, wages, and fringe benefits at each cooperating institution will apply to invividuals employed by that institution. Any after-the fact adjustments for institution-wide salary increases or merit promotions will, however, depend upon the availability of funds in the awarded budget.

b. Indirect Costs If indirect costs are requested from the grant, the indirect cost rate which has been negotiated with the DHEW by each institution under the consortium grant is the basis on which indirect costs are determined and paid under one of the following plans:

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Plan A

(1) Indirect costs for the grantee institution are handled as for any other research grant to that institution.

(2) Indirect costs for other institutions in the consortium will be computed on individual institution budgets and requested as part of the direct costs under the "Other" category in the composite application budget for the initial and all future years. (See Application preparation, 6b) In such cases, the amount requested by cooperating institutions will be a fixed maximum amount for each year based on estimated direct costs and indirect costs calculated by using indirect cost rates existing at the time of application. Reimbursement up to but not in excess of this amount will be made by the grantee institution to the cooperating institution through an acceptable billing process.

Where feasible, Plan A is preferred because of its simplicity and ease of management for all concerned. However, if this appears not to be an equitable arrangement, alternative Plan B may be proposed as the method of choice for reimbursement of indirect costs.

Plan B

Each member of the consortium may request and claim the full indirect costs to which it is entitled based on the negotiated provisional rate, with final settlement when a final indirect cost rate is established for all institutions involved. If Plan B is proposed by the applicant and approved by the NIH awarding unit, the following procedures will obtain:

(1) Indirect cost allowance at time of award Prior to an award for a consortium grant, the NIH awarding unit in consultation with the Indirect Cost Management System, Office of Financial Management, NIH, will calculate a "special" indirect cost rate for the consortium grant. This rate will be based entirely upon the rate currently being used by the DHEW for each component institution and will be used solely to determine the allowance at the time of award.

An example of the calculation is provided:

Institution	HEW Rate	Salary and Wage base	Indirect cost
A (grantee)	50%	$50,000	$25,000
B (cooperating)	25%	20,000	5,000
C (cooperating)	10%	50,000	5,000
Total		$120,000	$35,000

"Special" award allowance rate for consortium =

$$\frac{\$35,000}{\$120,000} = 29.17\%$$

(The calculation can be adjusted to accommodate those situations where institutions may have other than an S and W base.)

(2) Indirect cost claim on report of expenditure When the report of expenditures is submitted, the grantee institution will recalculate the appropriate indirect cost for each institution on any re-negotiated indirect cost rates and/or any change in the base against which the new rate is to be applied.

[In accordance with NIH policy, when the direct cost base upon which indirect costs are calculated is increased by any re-budgeting of direct cost funds, no additional funds for indirect costs resulting from such action will be provided by the NIH.]

The indirect cost claim reflected in the report of expenditures should represent the combined need of all institutions involved in the consortium based on the pertinent information available at the time the report of expenditures is submitted. Information necessary to justify the total indirect cost claim should be provided and should include the base, rate, and amount for each separate institution in the consortium. The sum of the individual indirect cost claims is the total to be claimed on the report of expenditures.

(3) Final settlement of indirect costs The amount of indirect costs at the time of award and at the time a claim is made on the report of expenditures is often based on a provisional rate. Final settlement is based on the establishment of a final rate. Indirect cost final settlement for a particular consortium grant cannot be submitted, under Plan B, until all institutions concerned have negotiated final rates with the DHEW. When the last final rate has been negotiated for the various institutions in the consortium, the grantee must assume responsibility for compiling the fiscal information necessary to establish the base to which the various indirect costs will be applied, not only for the grantee institution but also for each cooperating institution. These data will be submitted to the Indirect Cost Management System, OFM, NIH, for settlement outside the automated routine used for other types of grants.

8. *OTHER ADMINISTRATIVE CONSIDERATIONS*

a. Rebudgeting authority of cooperating institutions Rebudgeting between budget categories on the part of non-grantee cooperating institutions must have the prior approval of the grantee institution. However, the grantee institution may wish to establish in the written agreement moderate levels of rebudgeting authority within NIH policy limitations with each of the cooperating institutions.

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b. Audit guidelines:

(1) All costs incurred in the consortium grant will be subject to audit by the cognizant Federal audit agency.

(2) The written agreement with cooperating institutions should incorporate as a minimum all the requirements that would be called for in the agreement between NIH and the grantee, including a clause giving cognizant government auditors access to records where necessary to support costs of the cooperating institution relating to the grant. The grantee should establish controls to see that the cooperating institution's performance, in terms of cost effectiveness, is monitored.

c. Cost sharing guidelines:

(1) A provision will be included in the written agreement covering cost sharing when it is a research grant requiring such cost sharing.

(2) The grantee institution is responsible to the NIH awarding unit for the entire contribution to the total cost of the research project, either under an individual or an institutional cost sharing agreement with the DHEW. However,the grantee should require cooperating institutions, where appropriate, to contribute in proportion to their participation in the total project. Any negotiated arrangement for cost-sharing participation should be a part of the written agreement between the institutions in the consortium.

d. Equipment accountability and disposition The grantee institution shall have the responsibility for the purchase, inventory, accountability, and disposition of equipment in accordance with NIH policy. Title to equipment will reside with the grantee institution.

e. Grant-related income The written agreement between the grantee institution and the cooperating institutions will include a clause providing for the coverage of grant-related income in accordance with the policy which requires the grantee to be accountable for the NIH's share of any such income. The grantee is responsible for the records on the receipt and disposition of such income. The cooperating institution will maintain such records as are necessary for the grantee institution to fulfill its responsibility.

Expenditure of the Federal share of grant-related income will not be allowed to meet cost-sharing agreements except for grants under those programs where it is clear that legislative intent was to permit such income to be used for that purpose.

f. Publications The cooperating institutions must decide in advance whether the principal investigator at the grantee institution alone receives credit on research reports and other publications or whether the actual investigator at one of the cooperating institutions will receive such credit. Regardless of the arrangement, general agreements regarding authorships should be established initially.

9. *REPORTING REQUIREMENTS* In the written agreement it should be spelled out that the cooperating institutions are responsible for making full and complete reports on anything requiring reporting to the grantee institution which will in turn make the required reports to the NIH. The progress report should be patterned after the format generally used for program projects and center grants to show specific parts of the project separately and to report progress separately by the investigators responsible for the various portions of the project.

10. *EFFECTIVE DATE* This policy is effective for all new and competing renewal grants with beginning dates on or after July 1, 1973.

    Grantee institutions which now have consortium grants are encouraged to adopt the principles contained in this policy as soon as practicable.

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APPENDIX D

INTERIM REPORT OF THE
WORKGROUP ON DIABETES RESEARCH AND TRAINING CENTERS

September 9, 1975

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INTRODUCTION

The assignment of the Workgroup on Centers has been approached by trying first to establish the "state of the art" and, in this case, by examining the current diabetes center program of NIAMDD compared and contrasted with other mechanisms of research support within that Institute. Next, with the higher power lens, the workgroup considered the existing five Centers with respect to their activities, trying to recognize unmet needs and new ideas for the creation of a new generation of centers. The purpose there was to be able to compare an evolving "center concept" with the established one and with what Congress intended in the Act under the heading of "Diabetes Research and Training Centers." Such comparisons are possible only after a thorough and complete understanding of Congressional intent. Because that understanding is critical at this point in our deliberations and essential before any logical changes can be recommended, most of this report will address the center possibilities as created by the Act.

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I. WORKGROUPS ON DIABETES CENTERS

A. WORKGROUP I ON DIABETES CENTERS

This first workgroup was composed of the Directors of the five Diabetes-Endocrinology Centers, the Director of a Cancer Center (to get another perspective), and the Director of Extramural Programs as resource person. The Commission and NIH were represented as well:

Dr. Oscar B. Crofford	Director, Vanderbilt Diabetes-Endocrinology Center
Dr. Robert H. Williams	Director, Univ. of Washington Diab.-Endo. Center
Dr. Arthur Rubenstein	Director, Univ. Chicago Diabetes-Endo. Center
Dr. Donald F. Steiner	Principal Investigator, Univ. Chicago D-E Center
Dr. Joseph Larner	Director, Univ. Virginia Diabetes-Endo. Center
Dr. William Daughaday	Director, Washington Univ. Diabetes-Endo. Center
Dr. Mortimer B. Lipsett	Director, Cancer Center NE Ohio, Cleveland
Dr. George T. Brooks	Director, Extramural Programs, NIAMDD
Dr. Keatha Krueger	Executive Secretary, National Commission on Diabetes
Mrs. Louinia Whittlesey	Observer, National Commission on Diabetes

Drs. Rubenstein and Steiner were represented by Dr. Taber of their group and Dr. Larner was represented by Dr. Brooker, who is the Associate Director of the Charlottesville Center, at the first meeting. Dr. Lipsett was not present at the second meeting.

The first of two meetings was held in Nashville on May 26, 1975. The second was held in conjunction with the meeting of the American Diabetes Association in New York on June 16, 1975.

B. WORKGROUP II ON DIABETES CENTERS

This second workgroup was composed largely of physicians and physician-scientists primarily interested in problems of health care delivery and the design of such systems for the diabetic patient. The diabetic was also represented as well as the Commission and the federal sector.

Dr. John Davidson	Atlanta
Dr. Leona Miller	Los Angeles
Dr. Edgar A. Haunz	Grand Forks
Dr. Addison Scoville	Nashville
Dr. Arthur Krosnick	Trenton
Dr. John Runyan	Memphis
Mr. Jon Hall	Kansas City
Dr. George Brooks	Bethesda
Mrs. Louinia M. Whittlesey	Cleveland

Drs. Krosnick and Runyan, because of prior commitments, were not able to be present for the actual workgroup session but contributed their parts to the discussion through conversations over breakfast and lunch with the Chairman of the Workgroup on the preceding day.

The group met together in conjunction with the meeting of the American Diabetes Association in New York on June 13, 1975.

C. WORKGROUP III ON DIABETES CENTERS

This third of the Workgroups on Diabetes Centers was composed of a smaller group representing some of the members of the site teams visiting applicants for the Diabetes-Endocrinology Centers program with the idea that they may have developed additional thoughts about how diabetes centers of the future should be designed. In addition, an Associate Dean of Biomedical Sciences at one of the larger research-oriented universities in the country (having some 22 centers in his university) was included to give guidance in creating guidelines for centers in relation to the housing academic institution. Federal representation was included.

Dr. Stefan Fajans	Ann Arbor
Dr. James Field	Pittsburgh
Dr. John Fain	Providence
Dr. Jesse Roth	Bethesda
Dr. Russell Ross	Seattle
Dr. George Brooks	Bethesda
Dr. Keatha Krueger	Bethesda

This group met on July 27, 1975 in Building 31 on the campus of NIH in Bethesda.

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II. CURRENT FUNDING MECHANISMS FOR EXTRAMURAL RESEARCH PROGRAMS OF THE NATIONAL INSTITUTE OF ARTHRITIS, METABOLISM, AND DIGESTIVE DISEASES

A. SUMMARY

To place any new program in context, some appreciation of the existing mechanisms of research support within NIAMDD is needed. The following is a brief summary of these along with comments which consultants in the workgroups on Diabetes Centers felt should be conveyed to the National Commission on Diabetes.

In general, support is classified either as grants or contracts and grants may be subdivided into individual or collective. Within the latter category, two programs are in operation at the present time and a third is in the planning stages. When the word "diabetes" is used in connection with any of these programs, it is to be read as "diabetes and related endocrine and metabolic disorders and their complications." After a brief description of each program, the peer review system for evaluation of proposals will be mentioned and commented upon.

B. GRANTS

1. Individual Research Grants

Research grants may be awarded to an institution for the individual investigator (the Principal Investigator) for a period of one to five years' support. Many of the individual grants are for the full five years, at which time they are eligible for competitive renewal. Within the Diabetes Program area, many of these have been continued beyond ten to 15 years, so the argument that stable, long-term support is lacking within the program is not necessarily valid if the research is considered worthy by the peer review system.

Most consultants in our workgroups feel that the individual research grant with its peer review system is the very strength of this nation's research efforts; that this system must be preserved and protected; and that no other programs should be entertained if such programs reduce or in any way compromise the funds allocated to the individual grant program.

2. Institutional Research Grants

a. The Program Project Grant: The Program Project Grant (PPG) is an institutional grant under the direction of one Principal Investigator. Such grants support the research of a group of investigators focused on a common research theme with extensive collaboration, usually involving an interdisciplinary approach. In the initial peer review process, certain components of the Program Project may be disapproved for funding but, after that, there is a certain discretionary element at the local level in the distribution of funds by the Principal Investigator. A major disadvantage to the PPG is that, once unfunded, the entire research group is placed in jeopardy. For that reason, an attempt is being made within NIAMDD to suggest that groups or departments should not rely too heavily upon this particular mechanism of funding.

b. The "Core" Centers Program: This is the category which includes the existing five "Diabetes-Endocrinology Centers," the oldest of which has just passed its second birthday while the youngest is not yet six months old. The research again has a common theme but is broader in concept, and it is even more "interdisciplinary" and usually involves larger groups than the PPG. A prerequisite is that most, if not all, investigators are funded and their research has ample support. "Core support" has, as its purpose, the provision of shared facilities, stability to the research environment, and additional continuity to the overall research program. It might be pointed out here that the core center grant places no major emphasis on whether the research does or does not have a large clinical component. Funds are used for new research initiatives and pilot projects but long-term support is explicitly excluded: after three years, any project is expected to have matured to the point that it can compete for individual research grants.

Undoubtedly the Directors of the five existing Diabetes-Endocrinology Centers endorse the program, but, in addition, some of the workgroup's other consultants feel that the "core concept" is a good one and that it should continue to receive support within NIAMDD . . . this was presented to the full Commission in the way of a recommendation.

The question was raised: "How does an institution go about getting a core centers grant? . . . Just how do you get started?" And the answer given by our NIAMDD consultant was . . . First, the individual investigators with their individual grants establish a research program of quality;

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then, the individuals coalesce into a group with common research interests and a unifying plan; and then they apply for the core center program in accordance with available guidelines. Comments were made on several occasions about a "critical mass" of researchers but this has not been further defined.

Additional comments and recommendations for the existing "core centers" program were made and will be included in other parts of this report.

c. Specialized Clinical Research Centers: This program within NIAMDD is still on the drawing boards and it should be emphasized that the program has neither been finalized nor yet submitted to Council for advice before being announced. Therefore, any description here is, at best, only tentative. Still, it is felt that the Commission should be aware of programs even in their planning stage.

This proposed funding mechanism implies specific disease/disorder orientation (e.g., "Specialized Diabetes Clinical Research Center") with emphasis placed on the application of research to human subjects. Mandatory components include both clinical and research activities with heavy collaboration expected between the two. Funds are to support the research projects and it is expected that a given center will have a common research focus in the particular disease.

Here, it should be mentioned that such a program as this bears little or no resemblance to the General Clinical Research Center program which is long in operation through the sponsorship of NIH's Division of Research Resources and not through individual Institutes. These moneys are largely directed at the construction and maintenance of a clinical research facility, and the maintenance funds support core laboratory facilities and personnel. The word "general" is underscored because the research in such a facility is not categoric.

Within other Institutes of NIH, there are other types of centers: Comprehensive Centers within the National Cancer Institute, and Demonstration Centers within the National Heart and Lung Institute are but two. But, within NIAMDD, the four mentioned grant mechanisms comprise the entire program of research support, except for the "contract" mechanism. Before turning to that, a few words are in order on the peer review system for grants.

C. GRANTS -- PEER REVIEW SYSTEM

The grant proposal is received by NIH in the Division of Research Grants which then makes the decision which study section is to review the proposal. The Metabolism Study Section receives about half of all diabetes-related proposals. In Study Section, proposals receive independent and intensive review and then decision is made regarding the scientific merit of the research proposal. Each of these is then given a priority rating and these ratings are then passed to the Institute's Advisory Council, consisting of 18 members who then make recommendations relative to funding . . . after taking into consideration all grant and contract requests.

The time table for such a procedure is usually as follows:

January 1	submission of the written grant proposal
April-May	referral to a Study Section for review
June	action by Council on recommended priorities
July-October	if approved, award of the research grant with activation of funds.

Occasionally, a grant may be activated as early as July 1 of the same year, but more likely is August, September, or October. Thus, the "lead time" between the deadline for submission of the proposal and the activation of funding for the research is approximately eight to nine months, and this must be taken into consideration when preparing recommendations to Congress on budgets as part of the long-range plan.

D. CONTRACTS

In contrast to the grants mechanism, NIAMDD contracts are Institute-initiated and Institute-directed. The usual procedure whereby a contract is consumated is as follows: first, the Institute with its consultants recognizes the need for either research in an area or, more likely, development of a specific service or product. Examples of the former would include clinical trials or conducting surveys. Were the University Group Diabetes Project to be repeated, it would now probably fall into the category of the contracts mechanism rather than as it was with 13 separate grants. It is the content of the need which determines whether the contracts mechanism is the more appropriate of the two funding procedures. Examples of services or products would include production of special animal models or hardware (the "artificial beta cell" might be appropriate for the contracts mechanism).

Once the Institute identifies the need, it initiates the process by issuing a "request for proposals" (RFP) after receiving HEW review

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and approval. Such RFP's are publicized through the NIH Guide to Grants and Contracts, and in the "Commerce Business Daily" which reaches the country's industrial concerns as well as all academic institutions. Investigators then respond with proposals which are then determined (by administrative decision) whether they are indeed responsive to the intent of the RFP.

Next the proposals are usually reviewed by a special study section of outside consultants who review the proposals for scientific merit (as opposed to NIH's Division of Research Grants), although they may also be reviewed by regular study sections. Another review group consisting of staff of the Institute and outside consultants examines the proposals for relevance and then makes recommendations regarding funding.

Once awarded, the project is then assigned to a Project Officer from NIAMDD who performs site visits semi-annually, or oftener as needed; and there is annual review of the project with full scientific evaluation. Ordinarily, the contract is for one year, renewable.

Contracts are made with individuals or groups; and several contracts may be made for various components of a single product (or service). It is the funding which creates cooperation between scientists widely separated in their research interests.

The contracts program throughout NIH has occasionally come under fire from the scientific community. They complain that it is the most "directed" of all research; that it is painfully short-term; and that the system may occasionally be abused through inadequate peer review. It is a system which bears close and continued scrutiny. On the other hand, it has certain advantages and may be the best mechanism to implement some specific recommendations of the Commission in its long-range plan.

E. THE CONSORTIUM

The "consortium" mechanism for research funding is NIH-wide. The word implies more than one investigator at separated institutions cooperating and collaborating upon a single research project for which the "consortium grant" is awarded. It is nothing more than an administrative arrangement between the institutions and NIH (or the specific Institute).

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III. DIABETES-ENDOCRINOLOGY CENTERS OF THE NATIONAL INSTITUTE OF ARTHRITIS, METABOLISM, AND DIGESTIVE DISEASES 1972 MODEL

A. BACKGROUND

The idea for the creation of "diabetes centers" originated, at least in part, with several informal conversations held during late 1971 and early 1972 between Dr. Robert H. Williams (who had previously served on NIAMDD's Advisory Council), Dr. Robert Marston (then Director of NIH), Dr. Whedon (then and still Director of NIAMDD), Dr. Lamont-Havers (then Deputy Director of NIAMDD), and Dr. Lemar Remmert (then the Diabetes Program Director for NIAMDD's Extramural Programs -- the position now held by Dr. Krueger). Following Dr. Remmert's untimely death in 1973, attempts to locate within his files on diabetes centers the notes on the evolution of the program's announcement have been unsuccessful. Nevertheless, the idea evolved; the announcement was formulated; it was dated September 27, 1972; signed by Dr. Lamont-Havers for Dr. Whedon; and distributed over the country early in October, 1972. The announcement itself is a five-page document which is included in the Appendix to this report. Before describing its salient features, it might be pointed out that the nature of this announcement's deadlines had the effect of natural selection of applicant institutions.

B. APPLICATION DEADLINES AND NATURAL SELECTION OF APPLYING INSTITUTIONS

The announcement was received in most institutions on October 3, 1972; the deadline for a "letter of intent" was November 15; and the final application deadline was January 1, 1973. What with impending holidays, vacations, the postal delays that time of year . . . all these meant less than ten weeks were available in which to construct an institutional grant request which, under ordinary circumstances, is an undertaking of six to 12 months. Moreover, most university administrative officials require at least ten days to review applications leaving their institution. So, it is clear that only those institutions where there was already in force a high degree of coordination, cooperation, and collaboration -- where the interdisciplinary approach was already a reality -- only those institutions held any hope of meeting the application deadline . . . and then only through extraordinary effort. Still, and probably to the surprise of NIAMDD, some 30 to 40 applications were received in Bethesda by January 1. That response may be interpreted as widespread interest in such new diabetes programs or general dearth of diabetes research dollars at that time or both . . . .

C. THE ANNOUNCEMENT

The announcement of the new "Diabetes-Endocrinology Centers" program of 1972 began with the statement of intention:

> NIAMDD . . . announces its intention to support a number of Diabetes-Endocrinology Centers geographically dispersed throughout the United States.

We shall return to the point of geographic dispersion later in considering the 1974 Model as described in Public Law 93-354.

> During the next year or two, only centers in which the research emphasis is in the area of diabetes will be supported. The scientific community will be informed when the support is expanded to centers with other areas of research emphasis.

This last statement undoubtedly caused considerable concern on the part of organized Endocrinology, especially when its name had been appended to the new program's title, yet they were systematically excluded from the program for "the next year or two." This is another point which we shall return to in considering Centers as described in P.L. 93-354.

> Center grants will be limited to institutions where there is established ongoing research in diabetes and will be used to strengthen and to permit further development of these research efforts.

At this point, it is unequivocal that this new program was designed totally and exclusively to promote research in diabetes.

Next followed a definition of centers:

DEFINITION OF CENTERS

> Centers for research in diabetes will be established to facilitate, improve coordination in, or otherwise enhance the productivity of the research environment of the recipient institution. These centers will provide core resources and services at an institution where a broad and substantial volume of excellent diabetes research already exists.
>
> The centers are conceived as supporting scientific personnel, administration, and central support services to accomplish research goals that would not otherwise be possible. The center grant is not intended to

provide direct support for established ongoing research projects.

Funds to initiate projects by new investigators and for exploratory or feasibility studies may be supported by a center grant. Such funds may be requested each year of the center grant but support of any particular new project will be limited to a three-year period, at which time the project should compete for a regular research grant.

PROGRAM ORIENTATION

There is no prescribed model for a Diabetes-Endocrinology Center. A center should encompass a unique and substantial research program that has already developed as a result of the efforts of the investigators and the institution's particular resources and strengths.

The next item concerns Budget Categories and the one after that what should be included in the application in the way of information. So, to continue with the next section entitled:

PRIMARY CRITERIA UPON WHICH A CENTER GRANT APPLICATION WILL BE REVIEWED

The following criteria will be considered in review of an application:

1) The presence at the institution of a recognized leader in diabetes research who will serve as Principal Investigator
2) Interest and commitment of senior investigators to the center's research mission
3) History of development of one or more diabetes research projects to a program project or its equivalent and further development to a stage justifying center or core support

Parenthetically, it might be mentioned here that the number of institutions which fulfilled this latter criterion at that time were few.

4) Scientific merit of ongoing fundamental research and clinical investigation
5) Clarity and feasibility of diabetes research objectives of the center
6) Evidence of a multidisciplinary and interdepartmental approach to the study of problems in diabetes or potential for its development
7) Availability of existing beds and facilities equivalent to an NIH-supported general clinical research facility

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While most of the institutions applying at that time had active general Clinical Research Centers, this was a further limitation.

8) Potential for training postdoctoral fellows in diabetes research as evidenced by the merit of on-going research projects and/or an active diabetes-endocrinology training grant

This imposed a further limitation, since, at that time training grants were being phased out. Then, the final criterion was:

9) An Advisory Committee to assist the Principal Investigator in planning and evaluating new initiatives and to participate in decision making related to the center. This committee should be composed of senior professional personnel in the center and/or consultants within or without the applicant institution.

A note was then added about the review process and the communication was signed by Lamont-Havers.

Looking at this announcement in retrospect, from the viewpoint of the institution which applied though unsuccessfully, it is tempting to suggest this program was designed for a very few, select institutions over the country. And, from those criteria above, it is obvious why so many institutions were eliminated from further consideration for "administrative reasons."

On the other hand, some institutions interpreted this announcement as a challenge, albeit slightly vague, to come forth with "the model Diabetes Center." Dr. Brooks, Associate Director for Extramural Programs, NIAMDD, would probably agree that the Extramural Program of NIAMDD is sensitive to perceived needs of the scientific community and is alert to creating new programs or expanding or otherwise modifying existing programs to meet those needs . . . or to recognize "models" in the field which can be emulated through expansion of programs. With that in mind, some institutions may feel that NIAMDD would welcome innovative approaches in this new "Diabetes-Endocrinology Centers" program.

IV. DIABETES RESEARCH AND TRAINING CENTERS

INTERPRETATION OF PUBLIC LAW 93-354, Section 5, Subsection (a)

Section 5. (a) of the "National Diabetes Mellitus Research and Education Act" addresses itself to two topics:

1) the "Diabetes Research and Training Centers" and
2) the "Diabetes Coordinating Committee."

Because the centers-portion of the Act specifically mentions the National Commission on Diabetes by name, the Commission is thereby legally obliged to include "centers" in its deliberations. That portion of the Act also indicates that Congress anticipates recommendations from the Commission on centers . . . but, meanwhile, Congress has provided a general idea of its intent with a brief, one-paragraph description of centers and their envisioned functions.

It was apparent from public testimony before this Commission that the centers paragraph has received widespread interest. It has been subjected to a wide variety of interpretations and, perhaps, an occasional misinterpretation. Up to this point, there may even be some disagreement over its precise meaning among members of the Commission. For these reasons, it is appropriate to pause to re-read this paragraph once more in the effort to achieve a uniformly acceptable interpretation.

The Centers subsection, verbatim, is as follows:

RESEARCH AND TRAINING CENTERS: DIABETES COORDINATING COMMITTEE AND GENERAL AUTHORITY

Sec. 5 (a) Part D of title IV of the Public Health Service Act is amended by adding at the end thereof the following new sections:

DIABETES RESEARCH AND TRAINING CENTERS

Sec. 435 (a) Consistent with applicable recommendations of the National Commission on Diabetes, the Secretary shall provide for the development, or substantial expansion, of centers for research and training in diabetes mellitus and related endocrine and metabolic disorders. Each center developed or expanded under this section shall (1) utilize the facilities of a single institution, or be formed from a consortium of cooperating institutions, meeting such

research and training qualifications as may be prescribed by the Secretary; and (2) conduct (A) research in the diagnosis and treatment of diabetes mellitus and related endocrine and metabolic disorders and the complications resulting from such disease or disorders, (B) training programs for physicians and allied health personnel in current methods of diagnosis and treatment of such disease, disorders, and complications, and (C) information programs for physicians and allied health personnel who provide primary care for patients with such disease, disorders, or complications. Insofar as practicable, centers developed or expanded under this section shall be located geographically on the basis of population density throughout the United States and in environments with proven research capabilities.

A. AUTHORITY

From the minutes of the Commission's first meeting, it is clear that comments were made on the general subject of authority as defined in the several provisos of the Diabetes Act. With respect to the section of Centers, however, it is not clear whether the question of specific authority was raised . . . and resolved.

The Center Workgroups have assumed that the centers' authorization is directed at NIAMDD -- that NIAMDD is specifically authorized and charged with implementing the centers part of the Act. After more careful study of the Public Health Service Act, or at least some parts of it, that assumption is now less certain.

Part D, Title IV of the PHS Act deals with authorized programs of NIAMDD, NINDS (National Institute of Neurologic Diseases and Stroke), and other Institutes of NIH. Section 434, an amendment to which is made in the Diabetes Act on page 5, is a statement of general authority to NIAMDD; Section 435, the one we are concerned with on centers, does not identify a specific Institute; while Section 436 (on the Diabetes Coordinating Committee) involves all the Institutes of NIH (and other federal agencies) with programs related to diabetes.

This is not just a legalistic question. Before our workgroups can proceed to formulate precise suggestions for the Commission, it should be understood if the authority is established within NIAMDD or if that remains to be decided. This is equally important to the Commission, especially when budgetary recommendations for the individual Institutes are being formulated, so as to avoid imprecision and ambiguity in the long-range plan.

It is thus requested that the Chairman of the Commission provide assistance to the Center Workgroups in resolving this question, by whatever necessary means, prior to the time a final report on Centers is made to the Commission.

With that introduction, it would be well to mentally pencil in a question mark beside the initials NIAMDD when they are mentioned in this report -- since it was written before this issue of authority was raised.

To proceed now with the analysis, line-by-line, of this paragraph which begins:

"Consistent with applicable recommendations of the National Commission on Diabetes, the Secretary shall provide . . . "

Implicit in these introductory words are three assumptions: (1) that the Commission will consider centers in its deliberations, (2) that the Commission will make recommendations, and (3) that certain of these recommendations will be "applicable" to centers. The simplest recommendation the Commission could make is that centers as described are, in fact, a worthy idea and that this section of the Act should be implemented forthwith. An extension of that is the implication that NIAMDD is to refrain from implementation of programs for centers as described until such time as the Commission's recommendations are formulated.

What is not clear in the wording of this introduction is whether Congress intended to provide an efficient, time-saving, and direct interaction between NIAMDD and the Commission . . . a mechanism whereby the Commission's recommendations on centers, as long as such recommendations do not depart in any substantive way from the intent of Section 5, may be implemented by NIAMDD without need for prior Congressional review and approval. It is as if Congress anticipated, or even expected, the Commission to bring forth some changes -- refinements, if you will -- in this section on centers. Further, Congress seems to be expressing confidence in the Commission by implying here that the Commission's recommendations on centers, as long as they are "applicable," shall be implemented (and the verb here is third-person-imperative).

The simplest interpretation of the word "applicable" is " . . . those of the Commission's recommendations which pertain to, or in any way concern, centers . . . ." On the other hand, "applicable" may have more significance: if, for example, the Commission were to recommend that another Institute than NIAMDD should fund any part or otherwise be directly involved in this centers program, such recommendation would not be "applicable" since this section of the

Act deals only with authorized programs of NIAMDD (as was previously mentioned). Instead, such recommendation would require further Congressional action, i.e., it would constitute a recommendation to Congress for qualifying legislation.

Other less clear-cut examples of non-applicability could be imagined, but it is presumed that, if the question of applicability is raised during the formulation of a given recommendation regarding centers, such can be resolved within the Commission: any final recommendation emanating from the Commission with respect to centers should, therefore, be "applicable."

The phrase " . . . the Secretary shall provide for . . . " is an administrative arrangement within HEW's bailiwick but, here, it is interpreted as a euphemistic expression meaning that "the Director of NIAMDD, or more likely his Director of Extramural Programs, or most likely his Diabetes Program Director . . . is to initiate a new program for . . . ."

" . . . the development, or substantial expansion, of centers for research and training in diabetes mellitus and related endocrine and metabolic disorders."

"Development" in this context implies " . . . to bring into being, initiate, or create" new centers while "substantial expansion" implies some realignment of activities and resources within existing centers which already have programs of research and training.

When the expression "existing centers" is used, some will naturally assume this means the "existing five Diabetes-Endocrinology Centers" of NIAMDD. If this be the case, then the phrase " . . . substantial expansion of centers for research and training . . . " is internally inconsistent in the strictest, most narrow sense because the current NIAMDD "Diabetes Core Center" program, as has already been pointed out, does not include support for training activities. On the other hand, the "Core" guidelines certainly do not exclude the institution which has clinical training activities underway. From the administrative point of view, it is thus simpler to read " . . . centers . . . " as written with lower case "c" to imply any group of scientists and health professionals with a common interest, in this case, "diabetes mellitus and related endocrine and metabolic disorders." Thus, any center including the existing five Diabetes-Endocrinology Centers should be eligible to apply for the new center program presently under consideration by the Commission and NIAMDD.

One question which members of the Commission may have and which has been discussed in our workgroups is: of the following two alternatives, which is preferred?

a) to establish a new program for centers with new guidelines and new concepts which are to be consistent with applicable recommendations of the Commission; or

b) to expand and otherwise modify the existing Centers program, including expansion of the existing "Core Center" concept (and thus activities which are fundable) to comply with new (revised) guidelines which are consistent with applicable recommendations of the Commission.

The choice between these two options seems to be an administrative one and may be prerogative of NIAMDD. Choice of alternative (a) is likely on the grounds that greater flexibility both on the part of applicant institutions and NIAMDD is possible through multiple programs rather than a single program with multiple categories in it. There is the potential, however, of duplication of effort -- if not funding -- in multiple programs with this degree of overlap of activities. Again, it is a point which Dr. Whedon or others may want to comment upon in the discussion after this report.

" . . . in diabetes mellitus and related endocrine and metabolic disorders" is the categoric aspect of this section and, in fact, the entire Act. The statement is clear and unequivocal albeit rather broad. Dr. Fajans commented in one of our workgroups that it is hard to imagine many endocrine and metabolic disorders that are not somehow related to diabetes. It is the general feeling on this point that no useful purpose is served by trying to define this phrase further by listing diseases, disorders, or conditions which satisfy the categoric qualifications . . . or, even worse, which fail to satisfy this definition. We feel that it is the burden of the innovative, imaginative investigator(s) or applicant institution(s) to define "related" in such a way as to convince Study Section or whatever peer review system is to be involved in processing applications for this program. Such solution should be satisfactory to all concerned interest groups. If not, then our workgroups will gladly consider suggestions on this point.

To continue:

"Each center developed or expanded under this section shall (1) utilize the facilities of a single institution, or be formed from a consortium of cooperating institutions, meeting such research and training qualifications as may be prescribed by the Secretary;"

This clause contains two items which deserve amplification: the concept of the consortium, and the question of institution(s) meeting certain research and training qualifications as defined by HEW (or one of its agencies). First, the consortium . . .

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As was pointed out earlier in the section of this report dealing with funding mechanisms within NIAMDD, the "consortium" mechanism is merely an administrative convenience. The mechanism is clearly explained in the small pamphlet entitled: "NIH GUIDE FOR GRANTS AND CONTRACTS -- Guidelines for Establishing and Operating Consortium Grants," published in July, 1973. A copy of this is included in the appendix to this report. What is now new from the Act is that training is also included. Heretofore, research was the only activity supported by the consortium grant . . . and this is not restricted to NIAMDD: it is NIH-wide. Now, these guidelines, at least as far as NIAMDD is concerned, will need revision to include training as described.

Before leaving consortia, it might be pointed out that the current Diabetes-Endocrinology Center in Chicago is, in effect, a consortium between the University of Chicago and the Michael Reese Hospital in Chicago. Thus, no group (including the budding consortium in southern California and its spokesman, Dr. Levine, who presented at public hearings in Los Angeles) need worry about the consortium-part, as long as those cooperating institutions meet certain requirements . . . .

" . . . meeting such research and training qualifications as may be prescribed by the Secretary;" With regard to the meaning of qualifications, Dr. Krueger has provided the following comment: " . . . These qualifications take the form of regulations which are published in the Federal Register. 'Consistent with applicable recommendations of the NCD' regulations will be written, be reviewed, be published for comments and criticism from the outside community, be revised, be reviewed, and finally be published in the Federal Register. Only after these steps have been completed can a RFA (request for applications) be issued . . . . "

Earlier in this report, we saw that such "qualifications" or "regulations" for the current Diabetes-Endocrinology Centers program took the form of "primary criteria upon which a center grant application will be reviewed." Some criticism of these was registered in one of our Workgroups along with the offer to provide certain revisions of them. When "applicable," these might be incorporated into guidelines which are now being considered for the new centers program. In addition, other workgroups of the Commission are presently evolving recommendations of a more general nature regarding qualifications of institutions involved in research and training . . . and here I will mention specifically the Workgroup on Professional Education as part of Dr. Haddock's Subcommittee on Education. This group is evolving such criteria in professional training in the broadest context. Already, certain of these have been specifically identified as directly applicable to the training programs of centers. Without meaning to pre-empt Dr. Haddock's report to the Commission, I should

explain that "professional education" or "education of health professionals" means physicians and allied health personnel . . . and this has conceptual significance in that it emphasizes the "team" -- an idea which that workgroup feels is essential in the long-range plan . . . .

In addition, the Workgroup on Professional Education has requested the Committee on Research to give consideration to research training . . . and, by extension, qualifications of institutions engaged in research and research training, some or all of which may be directly applicable to the formulation of new guidelines for the centers program. The Center Workgroup is now ready to accept such suggestions from those Workgroups or Committees of the Commission in preparation of guidelines to be presented to the full Commission at some, as yet, unspecified date in mid fall . . . as part of the final report from the Workgroups on Centers.

Now, to continue . . . Centers shall . . .

" . . . (2) conduct (A) research in the diagnosis and treatment of diabetes mellitus and related endocrine and metabolic disorders and the complications resulting from such disease or disorders, . . . "

At first reading, these lines have caused consternation among certain consultants in our workgroups. The immediate reaction has been " . . . this seems to exclude basic research . . . . Just diagnosis and treatment? . . . ." But a careful re-reading of this, especially in the context of the entire Act, underscores the wisdom of Congress and provides insight into Congressional intent. In the Act's preamble . . . entitled "FINDINGS AND DECLARATION OF PURPOSE" . . . it says quite clearly:

9) The attainment of better methods of diagnosis and treatment of diabetes mellitus deserves the highest priority.
10) The establishment of regional diabetes research and training centers throughout the country is essential for the development of scientific information and appropriate therapies to deal with diabetes mellitus.

The Act then proceeds on page 2 to give an impressively long list of what Congress intends for "the coordinated research program," i.e., the long-range plan, to include. All of this is at the bottom of page 2 and the top of page 3 of the Act . . . all of which leaves no doubt that Congress does recognize the vital importance of basic research in the field of diabetes. And, if that were not enough, the last item included in the "coordinated research plan" states that the plan shall provide for:

(8) appropriate distribution of resources between basic and applied research.

The long-range plan formulated under this subsection shall also include within its scope related endocrine and metabolic diseases and basic biological processes and mechanisms, the better understanding of which is essential to the solution of the problem of diabetes mellitus.

From all this, there can be no doubt as to Congressional intent . . . .

But ignoring all of the Act's explanations and amplifications and concentrating only on the phrase " . . . research in the diagnosis and treatment . . . " in this directive to centers: just what is included in these two areas? With respect to " . . . diagnosis," one of the consultants to the Committee on Research has already emphasized the need for a new marker, a better means of recognizing diabetes (i.e., diagnosis) than elevated blood glucose or, better still, before the blood glucose becomes elevated. That research approach opens limitless possibilities, any one of which in the most literal sense can be considered "research in the diagnosis . . . of diabetes."

Moreover, " . . . research in . . . the treatment of diabetes . . ." does not necessarily imply drug testing or clinical trials . . . and this is quite apparent from the Workgroup titles of the Committee chaired by Drs. Lacy and Cahill: "Artificial Pancreas, Devices, Pancreas Transplantation" is but one example of pure research on treatment. When such research objectives are broadened by the inclusion of " . . . research . . . in . . . the complications . . . " one has again but to look at the roster of workgroups on research to appreciate how extensive such research is: "Ocular Complications, Neurologic Complications," and all the rest. I see few limitations there.

With respect to " . . . related endocrine and metabolic disorders," again the same comments made previously apply.

In the broadest sense, all research in diabetes is eventually directed at treatment, cure or prevention . . . and this, I think, is the intent of the Congress: to encourage the broadest attack on the diabetes problem through research in all areas which the scientific community identifies as important and relevant -- and a statement to this effect is one of the charges to the Committee on Research. With respect to a given grant proposal, it is again the burden of the applicant individual or institution to convince Study Section that the proposed research complies with the intent of "research in diagnosis and treatment" and, parenthetically, the real burden of anyone else to say that it doesn't!

No more need be said here: Congress is neither limiting the scope of our research nor attempting to direct it other than into the fields of diabetes and related disturbances . . . .

Now, to continue: Besides research . . .

" . . . centers . . . shall . . . (2) conduct . . . (B) training programs for physicians and allied health personnel in current methods of diagnosis and treatment of such disease, disorders, and complications, and (C) information programs for physicians and allied health personnel who provide primary care for patients with such disease, disorders, or complications."

(B) and (C) have been lumped together here before considering them separately to emphasize one point: many individuals read these few lines and interpret them as follows: "Centers shall provide three things: (1) research, (2) education, and (3) treatment." But that is not what these lines say. They say unmistakably . . . "research, training, and information programs . . . " and nowhere in this paragraph is "treatment" or "primary health care" mentioned as a primary directive to centers. Whether such should have been included in the Act is a point we shall return to shortly when considering recommendations suggested by some of our consultants . . . and this is an area we need to address in the discussion period.

Now, to the question of training and here, perhaps a few definitions are in order. Two terms will be used more or less interchangeably: "training" and "education." TRAINING is the process of being so instructed as to be made proficient or qualified . . . or if you prefer the active, verb sense . . . the process of instructing so as to make proficient or qualified. EDUCATION is the process of training and developing knowledge, skills, and attitudes by formal schooling. "Training" implies the refining of professional skills while "education" is the process of generating such professionals having skills. "Training" implies a short-term process while "education" is longer. And so on . . . . There are many, subtle differences in meaning in the two words but, to me at least, the two are inextricably interrelated and should be considered synonymous in most instances. Perhaps, Dr. Haddock may want to comment on this in the discussion.

Dr. Haddock will have a great deal to say in her report from the Subcommittee on Education about the entire problem of professional, patient, and public education in diabetes. Hers will be a large and comprehensive report, a thoughtful and stimulating one, and wisdom would dictate that these remarks be limited to the simple statement that centers are indeed a logical means to accomplish parts of her plan. She will indicate those areas of her plan which would best be suited to centers . . . and some of the approaches centers might use

to accomplish the training and education of target groups. For that reason, this part of this presentation will be abbreviated to concentrate on the intent of Congress with respect to the training activities of centers . . . and on a few Congressional omissions which our workgroups feel should be corrected through appropriate and "applicable" recommendations.

Now, to go back to part (B) and consider it separately . . .

" . . . (B) training programs for physicians and allied health personnel in current methods of diagnosis and treatment of such disease, disorders, and complications,"

The narrowest possible interpretation of these lines is that centers are to offer opportunities to practicing professionals, i.e., the health team, to improve their knowledge, skills, and attitudes in the recognition and management of diabetes and its complications and of related endocrine and metabolic diseases and their complications.

Training opportunities or programs . . . and I suppose now we are talking about what often goes by the name of "Continuing Education" in many medical schools . . . such programs can be provided either within the physical confines of the medical center or outside -- an out-reach program into the city, state or surrounding region. The presumption is that either or both fall within the intent of centers' functions as seen by Congress.

Within the medical center, such programs are offered either to the individual or, more likely, to groups . . . and with groups, they may take the form of a one or two day symposium, a course of instruction over one to five days, or a running course of instruction over six to 12 months. Virtually all combinations have been tried at one time or another in various medical centers across the country . . . and, one might add, with varying degrees of success . . . .

The major problem with continuing education as the Centers Workgroups see it . . . and here, my remarks are restricted to the practicing physician . . . the problem is the practitioner and not the program. And the problem begins early in his medical school experience. The student is exposed to crisis medicine . . . the management of acute medical problems . . . rather than to health maintenance or preventive medicine or chronic care or whatever it should be called. The student finds crisis medicine exciting and interesting . . . and he carries this interest into his subsequent practice of medicine. Then, the busier he becomes, the more crisis-oriented. Let me give you a personal experience:

> At the request of a practitioner some fifty miles removed from Nashville, I drove down to consult on a patient in serious trouble with diabetes. (This would be called "an out-reach program on a one-to-one basis" in education jargon . . . .) After the consultation, an appropriate course of action was agreed upon and the necessary orders were written. Then, my friend offered a cup of coffee. Although I didn't say it, I had decided that the patient would not have gotten into trouble if her doctor had known a little more physiology and pathophysiology of diabetes. So, I started drawing a small diagram -- a metabolic map -- . . . and my friend interrupted with the comment: "Look, I'm tired, I haven't gotten any sleep in thirty hours, and here you are trying to give me a course in biochemistry. All I wanted you to do was to tell me how to save that woman's life . . . ." Now, that's what I mean by "crisis orientation."

Practitioners are busy . . . and tired . . . so busy, in fact, that many of them just do not have time to return to the medical school or university center or, in this case, the diabetes research and training center for a refresher course. And, even if he took the time, the practitioner is usually interested in the solution to an immediate and real problem rather than to theoretic problems, whether related to diabetes or not. In the out-reach situation . . . rounds in the local hospital with several doctors . . . , one practitioner may take a little nap until it comes time to talk about his own patient. In a word, the problem is motivation . . . and this is a topic which Dr. Haddock will address in her report to the Commission. And it's the hardest problem of all.

If the problem goes back to the medical school, then it seems that the long-term solution is also there in the medical school. If our eventual objective is to have more doctors in this country interested in diabetes and proficient in its management, then any sound long-range plan must include the medical student and that plan should start with the freshman medical student who is receptive.

The Commission has heard public testimony from a medical student. His appeal had to do with the question of diabetes manpower for the future, particularly in research, and he urged the Commission to consider the medical student in its long-range plan. The Centers Workgroups would like to endorse that appeal but have the Commission consider it in a broader context. Whether it is research in diabetes, or the treatment of the diabetic, or education of workers in either area, the medical student is a major source of the manpower required for all three jobs.

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So, it is the recommendation of our Workgroups that centers should have training programs which include the medical student . . . and, for that matter, students in any of the allied health fields with diabetes interests and involvement . . . and that this function (B) of centers should either be so interpreted or, alternatively, that the charge should be rewritten as follows: "(B) education and training programs for physicians and allied health personnel and students-in-training in either or both categories . . . ." It is not to be implied here that students themselves should be supported with federal funds but that programs including them should be eligible for core support from center grants.

Now, to return briefly to the subject of practitioners and continuing education. A great deal of time, effort, and money has been expended in the past decade on continuing education. This was one of the main objectives of the Regional Medical Programs, and that was an era of federal involvement with financial support of such education. Now, the burden of support is largely being assumed by pharmaceutical houses, either directly through sponsorship of various symposia, or indirectly through donations to universities to support their continuing education programs. With that much time, effort, and money . . . and a decade of experience, there should be some information available on the cost-effectiveness of such endeavors. So far, we have not uncovered much useful information in this connection but anticipate continuing the search with the help of the Subcommittee on Education or any member of the Commission who can guide us. A discussion in this area with the full Commission should precede any solid conclusions regarding the extent to which new training programs in this field should be implemented, either with respect to centers or any other part of the long-range plan.

Before leaving this subject, it should be recognized that centers with their clinical training programs for practitioners will probably play a small, though significant, role in the overall national plan to improve the quality of health care given the diabetic . . . and, here again, the reports from Drs. Haddock and Etzwiler should put centers in proper perspective.

"Training programs for physicians . . ." must also be interpreted to include physicians who are still in training, i.e., the intern, resident, and postdoctoral fellow or trainee. Centers can and should play a major role in the training of such groups. And, parenthetically, it is much easier to plan such programs, to carry them out, and probably even to evaluate their effectiveness than with the previous program under consideration. With respect to fellowships or traineeships, once the present confrontation between the federal sector and academic institutions is resolved, centers can implement

and assume a significant responsibility in providing training in diabetes and related endocrine and metabolic disorders.

Now, to the question of allied health personnel. Our firm belief in the team approach . . . the "team concept," if you will . . . implies that most if not all of the above comments should apply equally well to the full cadre of health professionals. Here, I would like to interject a personal observation, somewhat of a philosophical nature, and that is . . . the newer a professional group in terms of organization and recognition as health professionals, the more enthusiastic, receptive, and motivated the group seems to be . . . . It is so easy and satisfying to put on a training program for dietitians. In fact, they insist on being included in every activity and they come . . . in droves . . . to research seminars, or whatever, as long as the topic is diabetes. The new breed of nurse clinicians or nurse practitioners or whatever they are called . . . and Dr. Haddock's group is also addressing that problem . . . these nurses are exceptionally motivated as a group. And that is the group where our broader efforts in improving health care delivery might well focus. Training . . .

"In current methods of diagnosis and treatment of such disease, disorders, and complications . . ." This has already been discussed earlier in the context of research and, again, the same broad interpretations should apply. For the practitioner, one area of emphasis to be included is when not to do a glucose tolerance test! It is envisioned that some centers will concentrate in one area of endocrine and metabolic disorders while other centers will have differing endocrine and metabolic interests. The intent of the section here is that all of them should have programs in diabetes as well.

Before turning to the last of the three charges, one comment must be made on the training environment of the institution housing the center. No mention has been made thus far of the patient, the diabetic himself, in all these training activities for physicians and allied health professionals. One of the best ways to teach is to show how to do something . . . and many of our consultants feel that centers must have model demonstration units in which the team approach to diabetes management can be observed in action. None of these consultants has suggested that NIH funds should be used for direct patient care but they feel there is justification for the support of key training personnel, either partial or full, who staff these demonstration units . . . and who design and carry out training programs for health professionals. These consultants have asked that such proposal be brought to the Commission, through the Commission to NIAMDD because this does not require other than formal endorsement from the Commission before such could be incorporated into NIAMDD

guidelines for the centers program. There is nothing in that proposal contrary to the intent of Congress or the new authority given NIAMDD.

Now, for the last of the three charges to centers:

"Each center . . . shall . . . (2) conduct . . . (C) information programs for physicians and allied health personnel who provide primary health care for patients with such disease, disorders, or complications."

The only part of this sentence we have not covered exhaustively before is the expression "information programs." Here again, the intent is to provide the health team with support services in the form of "information programs." It is another form of "continuing education" as well . . . . Call it "continuing education with crisis-orientation." This is a fertile field for innovation, for new ideas in trying to meet the needs of the health team. Let me mention just a few of the possibilities.

The best example is the telephone consultation service started at the University of Alabama School of Medicine in Birmingham, on a pilot basis, for practicing physicians in the surrounding several counties. There was some difficulty initially in deciding upon a name for this new service. "Physicians Information Service by Telephone" was the first proposal but there was a problem with the acronym . . . . Instead, it was decided to call it "MIST" meaning "Medical Information Service by Telephone." Such service was not restricted to diabetes but included all branches of medical practice. When last heard from, this service was still going strong and had received enthusiastic response from the physicians it supported. It doesn't cost much either.

Other examples of "information programs" include the various casette tapes, slides, movies, sound-slide systems, programmed learning courses, monographs . . . the list is long and limited only by the imagination. Most of these have been designed and distributed by pharmaceutical houses, occasionally with no mention of their product. And, while we are on the subject, the "detail man," the ubiquitous drug salesman, who sees every practitioner in the country, can function as an "information service" and is a potential resource we should not overlook. The local pharmacist is another . . . but probably this is not exactly what Congress had in mind.

Closed-circuit TV throughout a geographic region is another example of "information programs" but this has not proved as successful as predicted. It is not "crisis-oriented" enough. Another interesting example is the programmed computer which can carry on a dialogue with you about your patient in diabetic coma. After entering

data from the history, physical examination, and the laboratory, the computer pauses, then asks . . . "Did you forget to enter the potassium value or did you forget to ask the lab to run the test?" And so on . . . it's an instant, interesting, and intellectually stimulating way to learn . . . a way to get help when you are the primary physician. Clearly, this is more useful within the center confines but, there, it is the center of attention.

Another suggestion from our consultants is that centers have an identifiable area where some of these information services can be demonstrated, where information materials can be prepared for distribution throughout the geographic region . . . a repository of teaching and educational materials. Call it a "Learning Resources Laboratory" or whatever . . . and this function of the center would be interdigitated with the efforts of the National Library of Medicine (NLM) (NIAMDD's monthly Diabetes Literature Index is derived from NLM's holdings), the American Diabetes Association, the Juvenile Diabetes Foundation, pharmaceutical houses, and whatever groups are involved in the preparation of educational materials and services for physicians, patients, their families, and the general public. Dr. Haddock and some of her consultants will have more to say on these broad, coordinating efforts.

To finish this paragraph now:

"Insofar as practicable, centers developed or expanded under this section shall be located geographically on the basis of population density throughout the United States and in environments with proven research capabilities."

Congress, I believe, is asking here that if two institutions applying for such a centers grant have absolutely comparable programs and plans with respect to research excellence, innovative approaches to the training component, and effective ideas for information services . . . that the choice be made in favor of that institution serving the larger population, or at least the potential of serving the larger population. There is a qualification at the beginning of the sentence ("insofar as practicable . . . ") and another at the end ("and in environments with proven research capabilities."). No sentence could be made softer than this, and Congress certainly appreciates that research-and-whatever centers have to be located where the research is.

Without belaboring the point now, some efforts are under way in the Subcommittee on Education to produce a map showing the distribution of people and services in this country. Some consideration is also being given to the PSRO areas and the health services areas

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as guides for the location of center programs. More is to be said about this in the final report on centers.

Only a brief comment needs to be made on the remaining parts of Section 5 (Subsections (b) and (c)):

> (b) The Secretary shall evaluate on an annual basis the activities of centers developed or expanded under this section and shall report to the Congress (on or before June 30 of each year) the results of his evaluation.

If the date "June 30" is intended to be the end of the federal fiscal year, then that should be changed to read "September 30" to comply with the recent change; and the Commission might so recommend to Congress.

> (c) There are authorized to be appropriated to carry out this section $8,000,000 for fiscal year ending June 30, 1975, $12,000,000 for fiscal year ending June 30, 1976, and $20,000,000 for fiscal year ending June 30, 1977.

Again, June 30, 1975, is already past; it is unlikely that the fiscal year ending in September 1976 will be involved with respect to budgets; but the date June 30, 1977 should be changed to September 30, 1977, in keeping with the recent change in the federal fiscal year.

Comments on the amounts authorized for appropriation will be reserved for the concluding comments with respect to recommendations from the Centers Workgroups.

V. GENERAL COMMENTS, CONCLUSIONS, AND GENERAL AND SPECIFIC RECOMMENDATIONS

Consideration was given in the several workgroups to what has been alluded earlier in this report as the "ABC" question:

A. Research
B. Education
C. Treatment

and their various permutations and combinations. It is probable that some of these discussions were predicated on less than full appreciation of the wording in Section 5 of the Act. The following is an attempt to summarize the consensus.

First, for the combination ABC: that is the recommendation presented in this report with the reservation that C should imply neither a massive health-care delivery system supported by the NIH nor involve direct patient costs solely for treatment. C here means support of key personnel who perform both B and C functions of the envisioned centers.

Next, for the combination AB: this is, in the most literal sense, the intent of Congress in this Section of the Act. That C was not expressly included perhaps reflects the wisdom of Congress at a time when the issues related to national health delivery systems are being so widely debated.

As for any other combination, each workgroup has concluded that centers supported by NIH must include A. A is therefore regarded as sine qua non, and an example of A is the current "core centers" program of NIAMDD.

As for B alone or C alone or the combination BC, the consensus has been that, while such may be needed in the long-range plan, none of these should be supported directly and exclusively by NIH. If such are envisioned, they should either be out-reach programs of the ABC center or integrated parts of a consortium ABC center. In the Committee on Education and Treatment, I am sure these points are under consideration, and plans are being generated which do not involve NIH support. This question will also be considered in depth by the newly formed workgroup led by Dr. Field which is to look further into the role of the Center for Disease Control in the long-range plan. The Center Workgroups will happily receive any comments or suggestions from any of those groups with respect to what roles they feel centers as described here can play, in anticipation of the final report to the

Commission. All ensuing Committee reports will be heard with that purpose in mind.

A. GENERAL RECOMMENDATIONS TO THE NATIONAL COMMISSION ON DIABETES

1. The individual research grants program of the NIH with its peer review system is considered the very strength of this nation's research effort and should be preserved and protected to the exclusion of any and all other programs which might reduce or otherwise compromise funds for such program.

2. The current "core center" concept of research funding within NIAMDD is endorsed and recommended for continuing support by NIAMDD.

3. The Commission (and specifically the Committee on Research, i.e., Etiology-Pathogenesis) should give some consideration to other types of specialized centers for research support. The same recommendation applies to specialized centers for training support.

4. The Commission should include in its long-range research plan a statement to the effect that clinical research should enjoy the same status as basic research in the eyes of the peer reviewer, assuming that both have comparable scientific merit.

B. SPECIFIC RECOMMENDATIONS TO THE NATIONAL COMMISSION ON DIABETES

1. The Commission in its long-range plan and its coordinated research program should consider the important role which "Diabetes Research and Training Centers" can play in satisfying the objectives indicated in Item (6) on Page 3 of the Act, which states:

> (6) the education and training of scientists, clinicians, educators, and allied health personnel in the fields and specialties requisite to the conduct of programs respecting diabetes mellitus;

2. The Commission should consider the plan for "Diabetes Research and Training Centers" as defined in the Act and as here interpreted to be meritorious, sound, and workable. The Commission should recommend its implementation.

3. The Commission should provide aid and assistance to the Workgroups on Centers with respect to the question of authorization within HEW for "Diabetes Research and Training Centers." Such clarification is essential before planning can proceed either on

our part or on the Commission's. If the authority is not now established, the Commission may want to recommend to the Secretary in this regard. Such recommendation designating NIAMDD would not be illogical in the opinion of the Workgroups on Centers.

4. The Commission should recognize that the ideal "Diabetes Research and Training Center" should have a comprehensive and coordinated program in research, education, and treatment. The research should encompass both basic and clinical investigation, each complementing the other, and be of the highest possible quality; its eventual objective should be the cure and prevention of diabetes. Education should be directed at all levels and all members of the health team; and its objective should be the generation of enough competent health professionals to satisfy regional needs. Treatment should also be of the highest quality and should also have a large educational component, for the patient, too, is a member of the health team; its objective should be the improvement in the quality of life for the diabetic while he awaits the cure and prevention of diabetes.

5. The Commission should consider the concept of "core research support" to be meritorious and applicable to the "Diabetes Research and Training Centers" as well. The alternative is full research support for such a Center's program with distribution of funds at the local level. The Workgroups on Centers feel the first of these preferable, though this should receive discussion by the full Commission, prior to the final report from the Centers Workgroup.

6. The Commission should consider the concept of "core support" equally applicable to the envisioned training activities of these "Centers" as well as the proposed information programs for such "Centers." With respect to the treatment component of "Centers," it is anticipated that the same personnel ("key training personnel") will fulfill that role as well.

7. The Commission should consider the desirability of including in the "Diabetes Research and Training Centers" program model demonstration units in which the team approach to diabetes management can be observed in action as a reasonable training program.

   The Commission should also consider the desirability of including in the "Diabetes Research and Training Centers" program the suggestion (or requirement) that such Centers have an identifiable space where some of the information programs can be prepared and demonstrated. Such space could be called "The Learning Resources Laboratory" or "Learning Resources Library" of the Center, whichever is appropriate.

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(Mention has not been made in this preliminary report to date about the potential and real problems between "centers" of any kind and their housing academic institutions. A thoughtful statement on this subject has been prepared by one of the consultants to the Workgroups on Centers, Dr. Russell Ross, which is included in the appendix to this report. It might provide some guidelines in the creation of new centers within the present or future programs.)

8. The Commission should consider as a reasonable estimate of the number of "Diabetes Research and Training Centers" based on estimates of current and prospective manpower availability to be approximately fifteen (15) geographically distributed over the country.

9. The Commission should consider as a reasonable estimate of the budgetary requirements of such "Diabetes Research and Training Centers" to be in the range of $500,000 to $1,000,000 -- direct costs -- per year per Center -- in 1975 equivalents.

10. The Commission should include in its long-range plan these estimates with the objective to reach the goal of 15 centers incrementally over a three- to five-year period.

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APPENDIX E

Preliminary Report of the

Workgroup on Diabetes Research and Training Centers

August 5, 1975

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I. INTRODUCTION

At the previous meeting in Chicago on August 5, 1975, the Commission was presented a preliminary report on Diabetes Research and Training Centers. Its purpose was to provide the Commission with an analysis of that portion of Public Law 93-354 dealing with Centers in the effort to achieve unanimity among the Commission with respect to (1) interpretation of Congressional intent, and (2) the envisioned, general functions of this proposed Centers program.

Following that report in Chicago, there ensued an extended and active discussion on the Centers concept and, with minor exception, the Commission did seem to express general agreement on the purpose and function of the Centers. This interim report now should, therefore, be considered a supplement to that report. It begins with a brief consideration of the question of authority within HEW for this program, and it ends with a somewhat more detailed budgetary recommendation. In between, the Center program is summarized in synopsis form, preceded by a general comment on the need for flexibility in design of health-related programs and in the recommendations to issue from the Commission.

II. THE QUESTION OF AUTHORITY AND ITS ANSWER

In analyzing the statutory language of the Act's paragraph on centers, the question was raised as to which agency of the federal government is specifically authorized to implement the centers program. (See page of the Preliminary Report on Diabetes Research and Training Centers.) The Workgroup on Centers had initially assumed that NIAMDD was vested with this new authority, but further study raised doubt as to the validity of that assumption. Request was thus made of your Chairman to provide assistance in resolving the question. This was done with the help of counsel and through a thorough review of the legislative history of P.L. 93-354, as referenced at the end of the Act.

This legislative history demonstrates the clear intent of Congress not to specify NIAMDD as the agency for the Centers program, but to leave that decision to the Secretary of HEW based upon recommendations of the National Commission on Diabetes. First, a review of the legislative history and then an explanation for the change in authority as the bill evolved. . . .

In its first form as presented in S. 17 by Senator Schweiker on January 4, 1973, the paragraph on centers (or more accurately, "clinics") began as follows:

> DIABETES RESEARCH, TREATMENT, AND EDUCATION CLINICS
>
> Sec. 439. (a) The Director is authorized to establish not more than six model diabetes research, treatment, and education clinics throughout the United States within the framework of existing programs. . . .

It went on to explain. . . .

> DEFINITIONS
>
> Sec. 440. For the purpose of this part the term --
> (1) 'Director' means the Director of the National Institute of Arthritis, Metabolism, and Digestive Diseases. . . .

Senator McGee's bill (S. 648) was introduced on January 31, 1973, with the following wording:

> NATIONAL RESEARCH AND DEMONSTRATION CENTERS FOR DIABETES
>
> Sec. 437. (a) (1) The Director of the National Institute of Arthritis, Metabolism, and Digestive

Diseases may provide for the development of not less than fifteen centers for basic and clinical research into, training in, and demonstration of advanced diagnostic, prevention, and treatment methods for diabetes. . . .

Besides the delegation of authority in this introduction, the expression "may provide" indicates that the authority is discretionary, i.e., NIAMDD is not directed by Congress to establish centers. Later, you will see that this was changed in the final bill before its enactment. You might also note the difference here between the numbers of centers: the first Senate bill specified "not more than six" while the second specified "not less than fifteen centers."

In the House, Congressman Vander Jagt's bill (H.R. 4882) was introduced on February 27, 1973, and its centers paragraph is identical to the above (S. 648).

A significant change then followed with the introduction of the clean bill before the Senate (S. 2830) on December 19, 1973, again by Senator Schweiker. These changes followed public hearings in which many of you actively participated.

As an aside, it should be mentioned that Mrs. Ducat, in her testimony before the Subcommittee on Health of the Senate's Committeee on Labor and Public Welfare, used the expression "RERT centers" meaning "Regional Education, Research, and Treatment Centers," but it seems that the acronym didn't achieve instant popularity. . . . The clean bill used the following language:

NATIONAL DIABETES RESEARCH AND TRAINING CENTERS

Sec. 438. (a) The Director of the National Institute of Arthritis, Metabolism, and Digestive Diseases, under policies established by the Director of the National Institutes of Health and after consultation with the Advisory Council (established under section 434 (b)) and consistent with the recommendation of the task force, will provide for the development of research and training centers. . . .

The expression "task force" is the forerunner of the name "National Commission on Diabetes" which was suggested by Mr. Stenzler. In any case, here the authority remains with NIAMDD but qualifies it by including both the Advisory Council and the Commission.

The Senate REPORT 93-653 accompanying S. 2830 from Senator Kennedy and the Committee on Labor and Public Welfare confirmed the above without further elaboration.

In the House, the clean bill (H.R. 12417), introduced by Congressman Rogers on January 30, 1974, contained the key change in authority from NIAMDD to the Secretary of HEW:

DIABETES RESEARCH AND TRAINING CENTERS

> Sec. 435. (a) The Secretary may provide for the development, or substantial expansion, of centers for research and training. . . .

Again, the House REPORT 93-894 accompanying the clean bill did not elaborate on this change of authority beyond mentioning it. This report appeared on March 12, 1974, from Congressman Staggers and the Committee on Interstate and Foreign Commerce.

Finally, the House CONFERENCE REPORT (H.R. 93-1147 dated June 25, 1974) retained the authority in the office of the Secretary but added two significant changes:

DIABETES RESEARCH AND TRAINING CENTERS

> Sec. 435. (a) Consistent with applicable recommendations of the National Commission on Diabetes, the Secretary shall provide for the development, or substantial expansion, of centers for research and training. . . .

From the Senate version, the Commission's role is asserted; from the House bill, the authority resides in the Secretary; but entirely new is the use of the third person imperative: ". . . the Secretary shall provide. . . ." Here, any question of discretionary action on the Secretary's part is removed. He is directed by the Congress to implement the centers program of the Act, and he must do so, assuming that appropriations for the program are made by Congress.

Here then, three alternatives are available to the Commission:

1) Recommend that the Secretary implement forthwith the Act's section on centers and this would place the decision and responsibility directly upon the Secretary as to which of his agencies would coordinate the program;

2) Recommend to the Secretary that a specific agency within HEW as designated by the Commission be charged with the responsibility to implement the Act's section on centers; or

3) Recommend that the Secretary create a new agency within HEW specifically charged with the responsibility to implement the Act's section on centers.

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The last of these three alternatives implies the creation of a separate and independent "National Institute of Diabetes and Endocrine Diseases," a possibility which has been discussed by a very few of the consultants in the Workgroups on Centers and in at least one other Workgroup to the Commission. This third alternative is probably the least wise of the three. . . for it substitutes more bureaucracy rather than utilizing existing agencies to better advantage.

The second of these three alternatives is not unreasonable and, if elected, the agency specified should be NIAMDD to have the primary responsibility for the center program.

The first of these alternatives is the preferred one: leaving the decision to the Secretary. Very likely it would be NIAMDD anyway under such circumstances. . . but it would be his choice and responsibility.

Now, to the question: why did Congress decide to vest the authority for the Centers program in the Secretary of HEW rather than -- and more narrowly -- in NIAMDD? I think the answer is obvious: Congress with its farsighted wisdom is giving the Commission the opportunity for planning, for considering all options, and for making recommendations. In a word, this is flexibility and it is very important in any long-range plan. The Commission, too, should want to incorporate into its recommendations sufficient flexibility that the plan remains operational rather than out-dated.

In general, the more specific a given recommendation is, the less flexibility is incorporated into that recommendation. Needless to say, each recommendation must contain enough specificity to insure applicability and utility; too little, and the result is disquieting and disturbing. But, there is a happy balance. . .

In the remainder of this report, an effort is made to respect flexibility, to describe the Centers program with enough latitude that the program may remain useful in the Commission's long-range plan. . . yet with enough specificity that it can be accepted by the Commission.

The Commission now, in the course of developing the long-range plan and all the recommendations, is about ready to enter the important phase of extracting and abstracting. . . that process of reducing enormous volumes of information and material down to digestible portions. Concepts, too, must be defined in their barest form -- and must be agreed upon -- before recommendations emerge. For that reason then, the following description of the Diabetes Research and Training Centers program is presented in synopsis form, in barest outline, for the Commission's consideration.

(Synopsis)

III. DIABETES RESEARCH AND TRAINING CENTERS

This new program, which represents one facet of the long-range plan of the National Commission on Diabetes, is authorized by Public Law 93-354 and is to be administered by the Secretary of Health, Education, and Welfare.

A. PURPOSE

Diabetes Research and Training Centers are academically-based and provide an organized structure for the accomplishment of:

1) Basic research and clinical research in diabetes and its management;

2) Training of post-doctoral fellows for research in diabetes and its management;

3) Training of health professionals in diabetes and its management;

4) Training of practicing health professionals in diabetes and its management in the form of continuing education and information programs; and

5) A model education-treatment facility for the diabetic patient to enable the accomplishment of the aforementioned goals.

B. DEFINITIONS

For the purposes of this synopsis, the following terms are defined as:

1) "Diabetes" means "diabetes mellitus and related endocrine and metabolic disorders and the complications from such disease or disorders;"

2) "Management" means "diagnosis and treatment -- and the latter implies education as well -- of the diabetic patient with emphasis on the 'team approach' in his care;"

3) "Research" means "any bona fide hypothesis-testing or careful, systematic study or investigation undertaken to establish facts or principles. Such research may be conducted in the fields of biomedical sciences, education, and/or treatment;"

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4) "Training" means "the process of training and education of professionals;"

5) "Health professionals" means "physicians and allied health personnel and students in either group;" and

6) "Academically-based" means "utilizing the facilities of a single university-affiliated medical center, or being formed by a consortium of cooperating institutions including a university-affiliated medical center."

C. ELIGIBILITY

The institution or consortium of cooperating institutions wishing to qualify for this Centers program (and thus support) must have either:

1) Active programs of quality in each of the five areas designated above (under "Purpose") which, with Center support, can be substantially expanded; or

2 a) Active programs of quality in one or more of the areas designated above which can, with Center support, be substantially expanded, and

b) A feasible plan to develop active programs of quality in each of the other areas designated above.

D. ITEMS ELIGIBLE FOR CENTER SUPPORT

1) Salary for key professional personnel involved in research programs;

2) Salary for key health professionals involved in training programs;

3) Salary for administrative personnel of the Center;

4) Supplies, equipment, and materials for Center-wide activities and services;

5) New research initiatives on a pilot basis until such programs or projects mature to the point of competing on a nation-wide level for research support through the peer review system;

6) Funds for the development or expansion of the Center-based educational facility for the diabetic patient;

7) Patient care costs directly related to research;

8) Travel costs directly related to Center activities and services; and

9) Other expenses clearly specified and directly related to Center activities and services.

E. ITEMS NOT ELIGIBLE FOR CENTER SUPPORT

1) Stipends for post-doctoral trainees;

2) Stipends for health professionals-in-training;

3) Long-term support of basic research or clinical research programs or projects;

4) Patient care costs unrelated to research; and

5) Diabetes detection programs.

F. ALTERNATE SOURCES OF SUPPORT FOR THOSE ITEMS NOT ELIGIBLE FOR CENTER SUPPORT

(To correspond numerically with the list above):

1) Individual post-doctoral fellowships and applicable training grants or research service awards from NIH and other federal and private sources;

2) Allied health professionals training support from agencies with HEW, state health organizations, and voluntary health agencies;

3) Individual research grants and contracts of NIH:

4) City, state, and federal programs of health insurance, Medicare, Medicaid;

5) City, state, and federal programs and the voluntary health agencies.

G. MISSION OF CENTERS

Diabetes Research and Training Centers have the dual mission of contributing to the search for the eventual cure and prevention of diabetes through research and of contributing to the improvement of the quality of life for the diabetic until that time through research and through training of adequate numbers of qualified health professionals who care for the diabetic.

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To further the second half of this mission, Centers are encouraged to develop plans for community and regional interaction (including training and education "outreach" programs) in cooperation with and under the guidance of the Center for Disease Control, and in cooperation with relevant municipal, county, and state health agencies and medical associations, and in cooperation with relevant voluntary health agencies.

Diabetes Research and Training Centers are also encouraged to develop a multiplicity of funding and financial support for their various programs through other federal agencies, state and local sources, charitable donations and foundations, and third-party payments for patient care services.

Diabetes Research and Training Centers are not expected to be identical with respect to their research and training activities and services, but they are expected to share with each other and with the diabetes community at large the best that each has to offer. All other considerations being equal, the Centers are to be geographically dispersed over the United States based on population density.

Although each Center is to receive annual evaluation of its progress toward the accomplishment of the mission, committed support for each Center should imply a period not less than five years, with competitive renewal thereafter at intervals of five years.

H. PROJECTED TIME TABLE FOR IMPLEMENTATION OF THE CENTERS PROGRAM

January 1976	Formulation of regulations and guidelines with internal review by HEW, followed by publication of these in the Federal Register for public comments and criticism, followed by final revision, review, and publication;
July 1976	Announcement of the program and promulgation of the Request for Applications (RFA);
January 1977	Initial deadline for applications for the program;
April 1977	Peer review by a Special Study Section for Centers;
June 1977	Action by the Advisory Council;
August 1977	Activation of the program with funding of the initial approved Diabetes Research and Training Centers.

I. PROJECTED BUDGETARY REQUIREMENTS FOR IMPLEMENTATION OF THE CENTERS PROGRAM

Based on the best estimates of currently available and projected manpower and on regional needs, the number of Diabetes Research and Training Centers should be approximately 15, that number being reached incrementally over the first three years of the program.

Based on the best estimates of projected fiscal requirements for such a Center, the support for each Center should be in the range between $500,000 and $1 million per annum.

Thus, the projected budgetary requirements for the Centers program is:

a. Direct Costs

Fiscal Year ending September 30, 1977	$ 5,000,000
Fiscal Year ending September 30, 1978	10,000,000
Fiscal Year ending September 30, 1979	15,000,000
Fiscal Year ending September 30, 1980	15,000,000
Fiscal Year ending September 30, 1981	15,000,000

b. Approximate Total Costs (including indirect costs)

Fiscal Year ending September 30, 1977	$ 8,000,000
Fiscal Year ending September 30, 1978	12,000,000
Fiscal Year ending September 30, 1979	20,000,000
Fiscal Year ending September 30, 1980	20,000,000
Fiscal Year ending September 30, 1981	20,000,000

Report of the

WORKGROUP ON THE

VETERANS ADMINISTRATION

to the

National Commission on Diabetes

Chairman:

Lillian Recant, M.D.

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WORKGROUP ON THE VETERANS ADMINISTRATION

of the

National Commission on Diabetes

Roster of Participants

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I. INTRODUCTION

This statement has been prepared by a special VA physician-scientist committee in response to the request of the National Commission on Diabetes for a thorough analysis of how new or amended legislation and appropriations can improve diabetes programs in the VA health care hospitals across America and for diabetic Americans in general. Balance in the composition of the committee was achieved by recruiting members involved in all facets of diabetes research, patient care, and education of medical and paramedical personnel. A liaison member from the Central Office of the VA and a physician from the Joslin Clinic were available for consultation. We would like to acknowledge the assistance of Dr. Charles A. Rosenberg, Dr. Herbert Baganz, Mr. Daniel Rosen, and Mr. Bernard Kaufman of the VA Central Office in obtaining statistical data and developing a questionnaire.

II. HISTORICAL PERSPECTIVE

Following World War I, in 1921 Congress established the U.S. Veterans Bureau, then primarily charged with meeting the veteran's disability compensation needs. Recognizing the growing need to extend hospitalization care to veteran patients, the Veterans Administration Hospital system was established in 1930. One of the first VA Hospitals was opened in Lincoln, Nebraska. In 1946, a major commitment to excellence in quality of patient care was reaffirmed and enormously improved with the development of house staff training in VA Hospitals. Today more than 26% of house officers receive their postgraduate clinical training in VA Hospitals. In 1968, further avowed commitment to the VA's mission to excellence in patient care came with amendments to Chapter 73 of Title 38 authorizing greater sharing of medical expertise and special care resources available at affiliated university medical schools. Finally, in 1972, PL 92-541, The Health Manpower Assistance Act, enabled the VA to further integrate and secure the interaction of university medical centers in care of veteran patients by authorizing grants from the VA to medical schools and allied health care consortia.

III. CHARACTERISTICS OF THE VA HOSPITAL SYSTEM THAT PERMIT IT TO MAKE A SPECIAL CONTRIBUTION TO THE GOALS OF THE NATIONAL COMMISSION ON DIABETES

Today there are 169 VA Hospitals of which 100 are affiliated with University Medical Schools, and there are 95,544 hospital beds available for in-patient care. Figure 1 shows the size and age distribution of the veteran population on December 31, 1974. It is clear that more than

13 million veterans have reached the age at which diabetes mellitus occurs with the greatest frequency. A projection from the veteran populations of the Korean and Vietnam wars indicates that over the next 20-30 years another 16 million veterans will be at risk; and hence, it is expected that an increased number of patients with diabetes may have to be accommodated within the framework of the VA health care system. Diabetes already represents a major disease entity in the VA in that of 827,245 hospital discharges in FY 1974, 67,290 or 8.1% were patients with diabetes. This number of discharges is twice that noted for non-federal short stay hospitals.

It can be estimated that at any time approximately 15,000 patients with diabetes occupy beds in the VA hospital system, and several times that number are cared for in its ambulatory care programs. This constitutes the largest number of patients with this disease who are being managed within a single administrative framework, and thus is a unique resource for the definition of the natural course of the disease and for the determination of the effectiveness of presently available and future modalities of therapy. The comprehensive nature of the care available (medical, surgical, dental, dietetic, nursing, etc.) all within one system, as well as the absence of economic constraints, adds to the potential of this system as a model for the administration and evaluation of optimal care.

In addition to its deep involvement in and commitment to the care of patients with diabetes, the VA has fostered biomedical research into the pathogenesis and management of diabetes and related disorders. This has been effective primarily because there is present in the VA an inordinately large pool of physician-scientists working in the field of diabetes. This group of scientists includes world leaders in the field, many of them distinguished winners of awards and contributors in a major way to our understanding of the nature of underlying metabolic alterations in diabetes. In the past 15 years, the VA has been responsible for some of the most significant contributions to the study of diabetes made anywhere in the world. These physician-scientists, together with the patients, provide an outstanding environment for the training of sorely needed new experts in all phases of diabetes, i.e., research, education, and patient care. It should also be noted that training of physicians and other members of the health team is a role deeply ingrained in the VA system, and it is estimated that one-third of American physicians receive training in this hospital system.

IV. APPRAISAL OF PRESENT STATUS OF DIABETES PROGRAMS IN THE VA

In order to obtain data concerning the status of diabetes programs in the VA, a questionnaire was developed by the committee and submitted to every VA medical facility. A copy of this questionnaire is attached.

Answers were obtained from all stations. The responses are summarized in four tables titled respectively, (1) Personnel, (2) General and Education, (3) Therapy, and (4) Research. Critical appraisal of the responses to the questionnaire suggests that many stations misinterpreted the term "expertise" to mean "some degree of competence" rather than "special competence." This is reflected in the rather large number of staff presumably expert in diabetes. In view of this "over-reporting," the finding that only half of affiliated hospitals have residents "expert in diabetes" underlines the deficit in training programs in diabetes and endocrinology. Another problem encountered in interpretation of the questionnaire data concerns inconsistencies in responses, such as: 52% of affiliated hospitals have a podiatrist, but only 39% of hospitals specify that podiatrists are involved in the care of patients with diabetes. Despite the inadequacies of the data, it can be concluded that there is indeed in many of the affiliated hospitals a lack of a full complement of specially trained personnel required to deal with the totality of the patient with diabetes and his complications.

Most hospitals indicated the existence of nurse and dietician educators for diabetic patients and families. However, the experience of members of the committee suggests that many of these education units function quite independently of physicians. In fact, it was considered a rarity to find "integrated diabetic patient care." With regard to special therapy, namely, hemodialysis and kidney transplants, though the VA has the largest hemodialysis program in the country, one is impressed with the very small number of transplants, particularly in diabetic patients. This therapeutic area requires considerable expansion and research. Although only half of affiliated hospitals are able to provide the newer eye therapies, it must be noted that these patients can receive such treatment in other VA hospitals or affiliated medical school facilities.

The questions concerning research in diabetes at the VA were answered by the ACOS for Research whenever possible, and the actual research project funding is perhaps the most accurate data obtained. In FY 1975, $2,139,000 was spent on 136 Diabetes Research Projects ($15,728/project). Table 5 permits a comparison with FY 1973. It may be noted that essentially the same amount of money was allocated to Diabetes Research Projects (a mean of $14,927/project) in 1973 compared with 1975 despite inflationary problems and salary increases for technical personnel which have occurred over this two year period. Further, despite the fact that the total research project budget has increased from $57.7 million (1973) to approximately $65 million (1975), the proportion allocated to diabetes has actually decreased. Although there is no way of determining what is a reasonable commitment to research in any particular disease, one might assume (as is the case in industry for R & D) a commitment of approximately 5-10% of the patient care budget for R & D. This translates into

a figure which is almost ten-fold higher than that presently allocated for diabetes research in the VA.

V. RECOMMENDATIONS

A. GENERAL

The recommendations of this committee are based upon the precept that the present lack of understanding of the nature of diabetes makes management of the disease unsatisfactory, even when provided in an "ideal" fashion. Thus, the most important responsibility that the VA has to the patient with diabetes is to acquire the new knowledge necessary to elevate his care to a higher level of understanding and effectiveness. For that reason, we strongly urge that the requested funds deriving from this committee's report be devoted to basic research, critical evaluation of present therapy, and the training of people to carry out these goals.

This committee, based upon data generated from personal experience and from responses to an all VA questionnaire, believes Congress must enact legislation and appropriate sufficient funds to allow these developments to occur. To accomplish this goal, this committee believes sufficient additional appropriations must be made directly to the VA which will allow such funds to be disbursed as Special Programs in Diabetes in the VA. These funds must not come out of, nor compete with, the general VA budget for either patient care or research. Justification for such a proposal is based upon the VA's very large involvement in direct care of patients with diabetes, training and education of physicians and allied health personnel, its extraordinary resources in research personnel, and its outstanding past accomplishments in diabetes biomedical research.

B. SPECIFIC

1. Establishment of special units for the development of new modalities in the therapy of patients with diabetes. These units are envisioned as six to ten bed in-hospital facilities developed as extensions of basic research programs in qualified VA stations that will provide the facilities, scientific expertise, and the patient population to do the clinical investigation necessary to evaluate potentially important advances in diabetes. Example of such modalities might include automated insulin delivery systems, transplant of pancreatic tissue, and the use of endocrine manipulations such as somatostatin. Many VA hospitals, particularly in their relationship to their affiliated medical centers, could provide unique facilities for such important studies.

2. Cooperative studies of the efficacy of presently employed modalities in the therapy of diabetes. The VA has a unique capability to carry out cooperative studies designed to establish the value of available treatment. The application of this capability to problems in diabetes is a great opportunity for the VA to make an important impact in this area. We lack the data necessary to prescribe any of the present therapies to diabetic patients with a conviction that it will favorably alter the effect of their disease. The value of careful control of hyperglycemia, the use of oral agents, the effectiveness of patient education programs, the role of various therapies in retinal and renal disease are all examples of issues awaiting critical testing.

3. Manpower training in diabetes (medical and paramedical). In very few of the facilities in which patients with diabetes receive care in this country are the full range of experts available that are necessary for their comprehensive management. Equally disturbing is the lack of programs at the present time necessary to supply the specialists in diabetes who will be necessary in the future both for the application of care that will become increasingly sophisticated and who will carry out research in this area. The VA brings together a long tradition of training of health personnel and a position of leadership in the field of diabetology. The large number of physician-scientists in the VA who have made important contributions to this field provides a valuable focus for the establishment of such training programs. At this crucial point in time, the VA must reaffirm its commitment to specialty training. Since there are at present at least ten outstanding hospitals focused on the problems of diabetes, the addition to their current house staff allocations of an estimated 20 position ceilings in the field of diabetes and endocrinology (postgraduate years four and five) is recommended. This manpower should then be available for the development of high quality patient care and research programs in other VA facilities.

4. Increase for project research in diabetes. Diabetes research project funding must be increased. Trends during the past few years indicate a steady level of funding and an absolute decrease due to inflation. The ability to develop new programs to test, develop, and implement research findings in diabetes by the VA are ultimately dependent on this increase in research funding. The increase requested is sufficient to bring equipment needs up to date, fund expected new meritorious requests, and restore funding cuts made in ongoing meritorious programs. Maximal flexibility should be built into this program to allow investigators to exploit new knowledge and approaches as they occur. Further, it is anticipated that the addition of the 20 new positions noted above should, after a two-year period, result in the generation of new projects.

VI. BUDGETARY RECOMMENDATIONS

	Cost/Year	Year 3, 4, 5 →
A. Special Units (6-10)	$2,500,000	$2,500,000
B. Cooperative Studies (2)	1,000,000	1,000,000
C. Manpower Training	500,000	500,000
D. Project Research	500,000	750,000 → 1,000,000

It is estimated that these should represent continuing costs with provisions built in for inflation and growth.

VII. SUMMARY

In summary, it may be stated that though the workgroup does not generally favor "disease-oriented funding," there is justification for our "diabetes-oriented" recommendations under the present circumstances.

1. The VA system is, on a numerical basis, the major practitioner of diabetic care in the U.S.

2. The VA has over 200 investigators in the field of diabetes and related disorders, many world renowned and of outstanding quality.

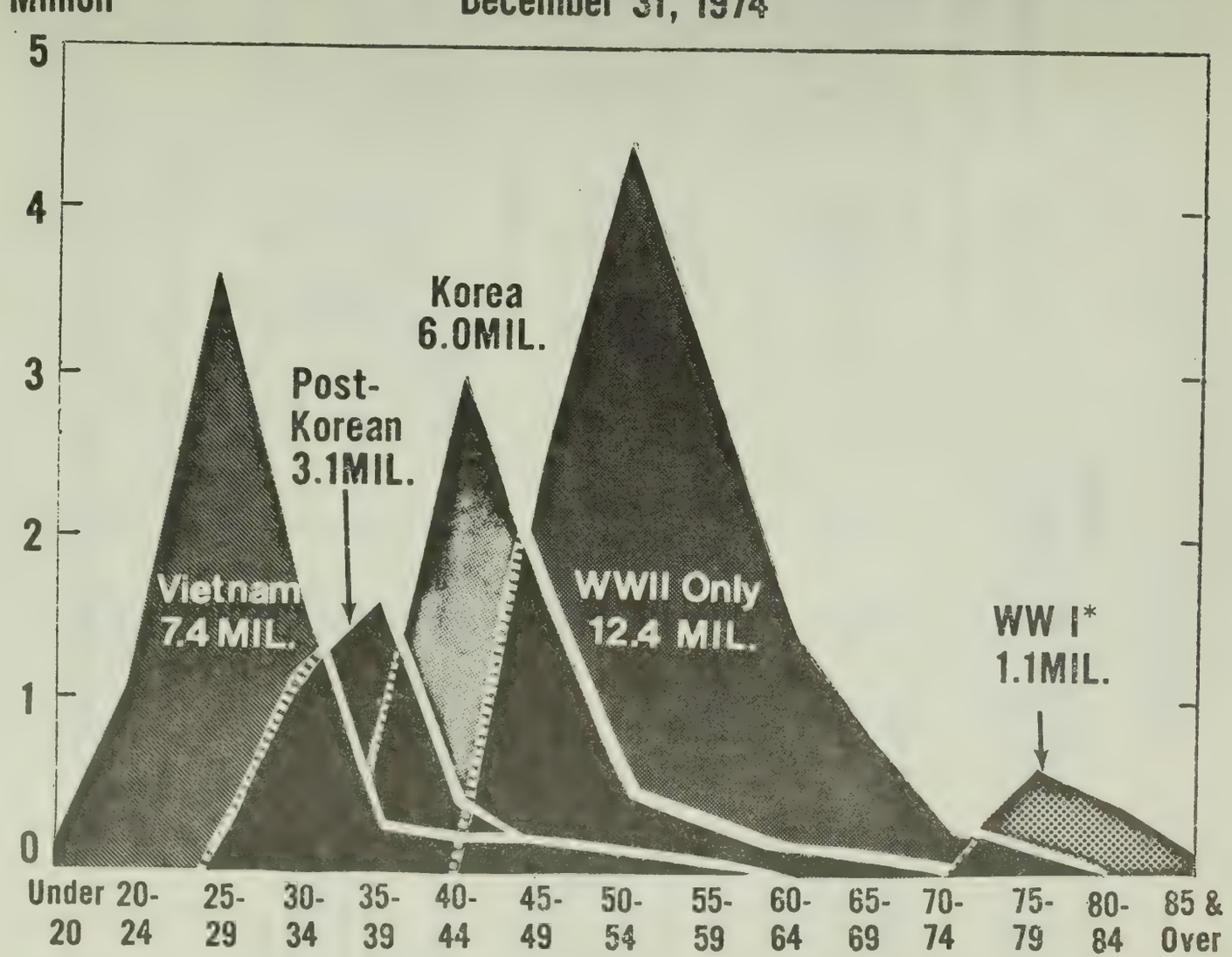
3. The VA mission, as expressed legislatively, involves all the areas of special import in diabetes, i.e., combined patient care, research, and education.

4. The VA system has a major responsibility to utilize its resources for a contribution to this very major national health problem.

VIII. APPENDIX

UNIVERSITY OF CALIFORNIA

VETERAN POPULATION BY AGE AND PERIOD OF SERVICE



*Including Spanish-American War Veterans

Table 1.

DATA* CONCERNING DIABETES IN

VETERANS ADMINISTRATION HOSPITALS

PERSONNEL

	Affiliated		Non-Affiliated	
	No.	Amt.	No.	Amt.
M.D. expert in diabetes:				
Full time	74	357	38	222
Regular part time	49	179	12	32
Residents	54	155	3	8
Consultants	62	234	17	40
M.D. specialists expert in diabetes:				
Internists/Generalists	87	526	40	251
Surgeons	36	182	10	21
Opthalmologists	47	75	10	13
Nephrologists	33	63	9	10
Neurologists	22	51	2	2
Osteopaths	-	-	1	1
Other	7	28	3	4
Non-M.D. staff involved in care of diabetic patients:				
Nurses	80	3124	43	1791
Podiatrists	36	197	16	16
Optometrists	16	16	4	4
Dietitians	81	238	41	116
Physician Extenders	16	48	14	34
Other	15	563	11	414

No. = Number of stations (91 Affiliated, 46 Non-affiliated)
Amt. = Number of items

* Obtained by questionnaire relating to FY 1975.

Table 2.

DATA CONCERNING DIABETES IN

VETERANS ADMINISTRATION HOSPITALS

	% Hospitals				%
	Affiliated		Non-Affiliated		Outpatient
	Gen.	Psych.	Gen.	Psych.	Clinics
General Data:					
Separate Diabetes Clinic	57	56	37	6	25
Diabetes detection program	35	67	54	87	63
Overall policy on control of diabetes	44	67	52	67	38
Consultants for diabetics	81	56	57	67	25
M.D. with special skills - diabetic foot	52	44	24	13	38
Podiatrist with special skills - diabetic foot	52	56	37	60	25
M.D. with special interest in diabetic eye	58	33	30	20	63
Diabetician separate from Endocr.	53	78	43	27	25
Diabetician not separate from Endocr.	74	56	35	20	50
Diabetes Research Laboratory	29	0	0	0	25
Diabetes Research Projects	46	22	6	6	0
Education - Patient and Family:					
Patient education	99	89	93	87	63
Group patient education by nurses	76	44	72	53	13
Individual patient education by nurses	97	78	98	53	75
Education for patients' families	93	89	87	60	50
Dietitian time with pt. (less than 10%)	20	44	13	33	0
" " " " (11 - 25%)	51	33	52	53	0
" " " (25%)	30	22	31	13	50
Dietitian time with fam.(10%)	70	89	67	80	50
" " " " (11 - 25%)	22	11	22	13	0
" " " " (25%)	6	0	6	0	0
Training:					
Nurse training in patient education	69	44	67	47	38
Nurse practitioners Rx diabetic patients	62	56	43	47	25
Residency rotation in Diabetes	30	0	0	0	0

* Obtained by questionnaire relating to FY 1975.

Table 3.

DATA* CONCERNING DIABETES IN

VETERANS ADMINISTRATION HOSPITALS

THERAPY

	Affiliated		Non-Affiliated	
	No.	Amt.	No.	Amt.
Hemodialysis:				
Number of patients	64	2531	11	53
Number of diabetic patients	53	234	5	6
Kidney Transplant:				
Diabetic patients screened	29	90	2	2
Diabetic patients receiving transplant	12	21	-	-
Diabetes related surgery:				
Below knee amputations	79	623	34	117
Above knee amputations	75	376	34	116
Bilateral amputations	28	55	7	8
Transmetatarsal amputations	59	227	17	68
Sympathectomies	40	127	17	62
Large blood vessels	61	868	21	86
Coronary by-pass	34	137	1	1
Eye Therapy:				
Diabetic retinal disease	51		5	
Photocoagulation	48		3	
Vitrectomy	40		3	

No. = Number of stations (91 Affiliated, 46 Non-affiliated)
Amt. = Number of items

* Obtained by questionnaire relating to FY 1975.

Table 4.

DATA* CONCERNING DIABETES IN

VETERANS ADMINISTRATION HOSPITALS

RESEARCH

	Affiliated		Non-Affiliated	
	No.	Amt.	No.	Amt.
Basic Research Projects	29	58	1	1
Drug Treatment	8	13	-	-
Eye	6	6	-	-
Neurologic	1	2	-	-
Renal	7	9	1	1
Cardiology	2	2	1	1
Infectious disease	-	-	-	-
Other	8	23	3	5

FUNDING:

128 projects in 41 stations of 91 affiliated general hospitals.
FY 75 - $2,047,000 = $15,992/project.

8 projects in 4 stations of 46 non-affiliated general hospitals.
FY 75 - $92,000 = $11,500/project

No. = Number of stations (91 Affiliated, 46 Non-affiliated)

Amt. = Number of items

* Obtained by questionnaire relating to FY 1975.

Table 5.

VA EXPENDITURES ON RESEARCH PROJECTS

DISTRIBUTION OF OVERALL EXPENDITURES BY DISEASE

(FY 1973)

Category	Frenquency	Amount Funded
Administrative Research	100	$ 434,197
Aging	335	2,597,069
Alcoholism	292	2,071,145
Blood Bank	34	205,701
Bronchial Pulmonary	311	3,016,231
Cancer	453	5,034,354
Cancer Chemotherapy	166	1,126,928
DIABETES MELLITUS	155	2,313,702
Diseases of Circulatory System	450	3,959,104
Drug Dependence	88	879,339
Educational Methods	146	261,240
Epidemiology	128	807,573
Extended Care Services	33	90,702
Arteriosclerosis - General	106	983,384
Health Services Research	87	293,437
Heart Disease	307	3,973,014
Influenza and Pneumonia	44	289,965
Mental Disorders	456	3,340,532
Mental Retardation	37	171,046
Microwave Effects	4	121,468
Multiple Sclerosis	50	427,860
Nursing	21	12,991
Oral Disease	56	525,341
Organ Bank	35	238,253
Organ Transplant	182	1,838,353
Parkinsonism	50	206,031
Physical Medicine & Rehab.	82	149,091
Preventive Medicine	120	926,976
Procedures for Patient Care	300	1,453,273
Renal Dialysis	161	1,188,457
Sickle Cell	34	422,402
Spinal Cord Injury	71	399,169
Stroke	110	787,113
Suicide	19	89,969
Other Human Diseases or Disorders	972	13,523,669
Not Reported	557	3,518,151
Total	6,552	57,677,230

TELEGRAPHIC MESSAGE

NAME OF AGENCY	PRECEDENCE	SECURITY CLASSIFICATION
VACO WASHINGTON, D.C.	ACTION: PRIORITY INFO:	
ACCOUNTING CLASSIFICATION	DATE PREPARED 7/29/75	TYPE OF MESSAGE ☐ SINGLE ☐ BOOK ☒ MULTIPLE-ADDRESS
FOR INFORMATION CALL		
NAME B. KAUFMAN	PHONE NUMBER 3897	
THIS SPACE FOR USE OF COMMUNICATION UNIT		

MESSAGE TO BE TRANSMITTED (Use double spacing and all capital letters)

TO:
DIRECTORS, VA HOSPITALS AND INDEPENDENT OUTPATIENT CLINICS

00/DM&S CIRCULAR 10-75-172- NON-RECURRING REPORT ON DIABETES MELLITUS, RCS 17-24-S

THE NATIONAL COMMISSION ON DIABETES ESTABLISHED BY PL 93-354 IS CHARGED WITH RECOMMENDING TO THE CONGRESS IN OCTOBER 1975 MATTERS CONCERNING RESEARCH, EDUCATION AND TREATMENT IN THE FIELD OF DIABETES AND RELATED METABOLIC DISEASES. THE VA WORK GROUP MUST REPORT TO THE FULL COMMISSION ON SEPTEMBER 8, 1975 WITH SPECIFIC RECOMMENDATIONS CONCERNING THE ROLL OF THE VA IN THE OVERALL NATIONAL DIABETES EFFORT.

YOUR REPLY BY TELETYPE TO (173B) BY AUGUST 15, 1975 TO THE FOLLOWING QUESTIONS IS REQUIRED.

I. REPORT AS MANY OF THE FOLLOWING RELATING TO DIABETES MELLITUS THAT APPLY AT YOUR HEALTH FACILITY.

1. A SEPARATE DIABETES CLINIC
2. A DIABETES DETECTION PROGRAM
3. A PROGRAM OF PATIENT EDUCATION IN DIABETES
4. A PROGRAM OF PATIENT EDUCATION FOR FAMILIES OF DIABETIC PATIENTS

SECURITY CLASSIFICATION	PAGE NO.	NO. OF PGS
	1	8

STANDARD FORM 14
REVISED AUGUST 1967
GSA FPMR (41 CFR) 101-35.306

* GPO : 1976 O - 533-408

16-306

TELEGRAPHIC MESSAGE

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ACCOUNTING CLASSIFICATION	DATE PREPARED	TYPE OF MESSAGE ☐ SINGLE ☐ BOOK ☐ MULTIPLE-ADDRESS
FOR INFORMATION CALL		
NAME	PHONE NUMBER	

THIS SPACE FOR USE OF COMMUNICATION UNIT

MESSAGE TO BE TRANSMITTED *(Use double spacing and all capital letters)*

TO:

5. CONSULTANTS WHO SEE DIABETIC PATIENTS
6. PHYSICIANS WITH SPECIAL SKILLS IN DIABETIC FOOT PROBLEMS
7. PODIATRISTS WITH SPECIAL SKILLS IN DIABETIC FOOT PROBLEMS
8. PHYSICIANS WITH SPECIAL INTEREST IN DIABETIC EYE DISEASE
9. SPECIAL THERAPY FOR DIABETIC RETINAL DISEASE
10. CAPACITY TO DO RETINAL PHOTOCOAGULATION
11. CAPACITY TO DO VITRECTOMY
12. SPECIAL TRAINING FOR NURSES IN PATIENT EDUCATION IN DIABETES
13. PATIENT EDUCATION BY NURSES TO GROUPS
14. PATIENT EDUCATION BY NURSES TO INDIVIDUALS
15. NURSE CLINICIANS OR NURSE PRACTITIONERS WHO SEE DIABETIC PATIENTS
16. DIABETES RESEARCH LABORATORY
17. DIABETES RESEARCH PROJECTS UNDERWAY
18. A POLICY ON THE MEDICAL SERVICE TO CONTROL DIABETES TO ACHIEVE NORMAL BLOOD SUGAR

SECURITY CLASSIFICATION		
PAGE NO	NO OF PGS	
2	8	

STANDARD FORM 14
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GSA FPMR (41 CFR) 101-35.206

GPO : 1973 — 485-557

14-304

TELEGRAPHIC MESSAGE

NAME OF AGENCY	PRECEDENCE ACTION: INFO:	SECURITY CLASSIFICATION
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FOR INFORMATION CALL		
NAME	PHONE NUMBER	
THIS SPACE FOR USE OF COMMUNICATION UNIT		

MESSAGE TO BE TRANSMITTED *(Use double spacing and all capital letters)*

TO:

19. PHYSICIANS WITH EXPERTISE IN DIABETES AS A GENERAL METABOLIC PROBLEM SEPARATE FROM ENDOCRINOLOGY

20. PHYSICIANS WITH EXPERTISE IN DIABETES AS A GENERAL METABOLIC PROBLEM NOT SEPARATE FROM ENDOCRINOLOGY

21. A RESIDENCY PROGRAM WITH A SUB-ROTATION DEVOTED TO DIABETES

22. DURING FY 1975 APPROXIMATE PERCENTAGE OF DIETITIAN TIME DEVOTED TO:

DIABETIC PATIENTS

A. 10 PERCENT OR LESS

B. 11 TO 25 PERCENT

C. 26 PERCENT OR MORE

FAMILY OF DIABETIC PATIENTS

D. 10 PERCENT OR LESS

E. 11 TO 25 PERCENT

F. 26 PERCENT OR MORE

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	3	8

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ACCOUNTING CLASSIFICATION	DATE PREPARED	TYPE OF MESSAGE ☐ SINGLE ☐ BOOK ☐ MULTIPLE-ADDRESS
FOR INFORMATION CALL		
NAME	PHONE NUMBER	
THIS SPACE FOR USE OF COMMUNICATION UNIT		

MESSAGE TO BE TRANSMITTED *(Use double spacing and all capital letters)*

TO:

II. PROVIDE THE FOLLOWING:

1. NUMBER OF PHYSICIAN STAFF WITH EXPERTISE IN DIABETES
   - A. FULL TIME
   - B. REGULAR PART TIME
   - C. RESIDENTS
   - D. CONSULTANTS

2. NUMBER OF PHYSICIANS WITH EXPERTISE IN DIABETES BY SPECIALTY
   - A. INTERNISTS/GENERALISTS
   - B. SURGEONS
   - C. OPHTHALMOLOGISTS
   - D. NEPHROLOGISTS
   - E. NEUROLOGISTS
   - F. OSTEOPATHS
   - G. OTHER

3. NUMBER OF OTHER STAFF INVOLVED IN THE CARE OF DIABETICS
   - A. NURSES
   - B. PODIATRISTS
   - C. OPTOMETRISTS
   - D. DIETITIANS
   - E. PHYSICIAN EXTENDERS
   - F. OTHER

DATA FOR ITEMS 1 THROUGH 3 AS OF JULY 31. ITEMS 2 AND 3 CONCERN NUMBER OF FULL TIME AND PART TIME AND INTERMITTENT EMPLOYEES.

SECURITY CLASSIFICATION	PAGE NO.	NO. OF PGS
	4	8

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ACCOUNTING CLASSIFICATION	DATE PREPARED	TYPE OF MESSAGE ☐ SINGLE ☐ BOOK ☐ MULTIPLE-ADDRESS
FOR INFORMATION CALL		
NAME	PHONE NUMBER	
THIS SPACE FOR USE OF COMMUNICATION UNIT		

MESSAGE TO BE TRANSMITTED *(Use double spacing and all capital letters)*

TO:

4. WHO GENERALLY MANAGES THE DIABETES OF PATIENTS WITH ANY COMBINATION OF MEDICAL, SURGICAL, OPHTHALMOLOGIC, OR NEUROLOGICAL PROBLEMS?

5. DURING JULY 1975 SHOW FOR THE VA HEMODIALYSIS PROGRAM IN CENTER, HOME DIALYSIS TRAINING, HOME DIALYSIS AND SATELLITE DIALYSIS:

   A. NUMBER OF PATIENTS

   B. NUMBER OF PATIENTS WITH DIABETIC RENAL DISEASE

6. FOR KIDNEY TRANSPLANT PROGRAMS IN FY 1975 SHOW:

   A. NUMBER OF DIABETIC PATIENTS SCREENED FOR TRANSPLANT

   B. NUMBER OF DIABETIC PATIENTS RECEIVING TRANSPLANT AT VA EXPENSE

7. DURING FY 1975, IN SURGERY ON PATIENTS FOR DIABETIC RELATED SURGERY SHOW:

   A. NUMBER OF BELOW KNEE AMPUTATIONS

   B. NUMBER OF ABOVE KNEE AMPUTATIONS

   C. BILATERAL AMPUTATIONS

SECURITY CLASSIFICATION		
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VA FPMR (41 CFR) 101-35.306

* GPO : 1973 — 495-857

14-306

TELEGRAPHIC MESSAGE

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ACCOUNTING CLASSIFICATION	DATE PREPARED	TYPE OF MESSAGE ☐ SINGLE ☐ BOOK ☐ MULTIPLE-ADDRESS
FOR INFORMATION CALL		
NAME	PHONE NUMBER	

THIS SPACE FOR USE OF COMMUNICATION UNIT

MESSAGE TO BE TRANSMITTED *(Use double spacing and all capital letters)*

TO:

D. TRANSMETATARSAL AMPUTATIONS

E. SYMPATHECTOMIES

F. MAJOR BLOOD VESSEL AND PERIPHERAL VASCULAR SURGICAL PROCEDURES

G. CORONARY BY-PASS SURGERY

8. NUMBER OF RESEARCH PROJECTS IN DIABETES IN FY 1975

A. BASIC RESEARCH

CLINICAL RESEARCH

B. DRUG TREATMENT

C. EYE

D. NEUROLOGIC

E. RENAL

F. CARDIOLOGY

G. INFECTIOUS DISEASE

H. OTHER

I. FY 1975 FUNDING FOR ALL DIABETES RESEARCH

IN YOUR REPLY ONLY PROVIDE THE ANSWERS TO THE QUESTIONS THAT APPLY TO YOUR HEALTH CARE FACILITY. DO NOT REPEAT THE QUESTIONS. YOUR REPLY MUST BE IN THE FORMAT SHOWN IN THE FOLLOWING EXAMPLE:

SECURITY CLASSIFICATION	PAGE NO	NO OF PGS
	6	8

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FOR INFORMATION CALL		
NAME	PHONE NUMBER	
THIS SPACE FOR USE OF COMMUNICATION UNIT		

MESSAGE TO BE TRANSMITTED *(Use double spacing and all capital letters)*

TO:

I. 2-3-6-7-11-14-16-20-21-22A-22D

II.

1A-3	5A-10
1C-2	5B-2
2A-1	6A-3
2B-1	6B-1
2E-1	7A-1
2G-1	7D-2
3A-4	7F-1
3C-1	7G-2
3D-1	8A-1
3E-1	8E-1
4-INTERNIST	8I-65,000

IN THE FORMAT EXAMPLE ABOVE ONLY DATA THAT APPLY TO YOUR HEALTH CARE FACILITY SHOULD BE REPORTED. FOR PART I THE NUMBERS RELATE TO THE ITEMS THAT APPLY AT YOUR FACILITY. FOR PART II THE QUESTION NUMBER AND ANSWER ARE SHOWN.

PAGE NO	NO OF PGS	SECURITY CLASSIFICATION
7	8	

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14-328

TELEGRAPHIC MESSAGE

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ACCOUNTING CLASSIFICATION	DATE PREPARED	TYPE OF MESSAGE ☐ SINGLE ☐ BOOK ☐ MULTIPLE-ADDRESS
FOR INFORMATION CALL		
NAME	PHONE NUMBER	

THIS SPACE FOR USE OF COMMUNICATION UNIT

MESSAGE TO BE TRANSMITTED *(Use double spacing and all capital letters)*

TO:

A NEGATIVE REPORT IS REQUIRED IF APPLICABLE.

IN ORDER FOR THE REPORT TO BE SUMMARIZED FOR THE SEPTEMBER 8 MEETING OF THE NATIONAL COMMISSION ON DIABETES THE DUE DATE OF AUGUST 15 MUST BE STRICTLY ADHERED TO.

DIRECT ANY QUESTIONS YOU MAY HAVE CONCERNING THIS REPORT TO MR. B. KAUFMAN, FTS EXTENSIONS 3897 OR 3798. THIS CIRCULAR EXPIRES SEPTEMBER 30, 1975. 173B/10A

Laurance V. Foyer, M.D.

SECURITY CLASSIFICATION		
	PAGE NO.	NO. OF PGS
B. KAUFMAN:tdj (173B) (17)	8	8

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LIBRARY U. OF I. URBANA-CHAMPAIGN

Report of the

WORKGROUP ON

THE CENTER FOR DISEASE CONTROL

to the

National Commission on Diabetes

Chairman:

James Field, M.D.

LIBRARY U. OF I. URBANA-CHAMPAIGN

WORKGROUP ON

THE CENTER FOR DISEASE CONTROL

of the

National Commission on Diabetes

Roster of Participants

James Field, M.D., Chairman

Jack A. Barwind, Ph.D.

Allan L. Drash, M.D.

J. William Flynt, M.D.

Joyce Kortman

Seymour M. Perry, M.D.

Anthony Robbins, M.D.

John W. Runyan, M.D.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

REPORT OF THE WORKGROUP ON THE CENTER FOR DISEASE CONTROL

At the meeting of the National Commission on Diabetes in Atlanta, Georgia, on July 7, 1975, the Center for Disease Control presented a proposed CDC diabetes prevention and control program. In response to that proposal the Commission expressed a desire to maintain a continuing dialogue with the CDC, noting particularly the unique position which the CDC has as a federal agency, and to initiate a cooperative relationship toward developing a CDC diabetes control and prevention program. To fulfill this purpose, the Commission created the Workgroup on the Center for Disease Control; and the Workgroup has cooperated with the CDC in the course of several extensive discussions in which advice and recommendations were offered. The final CDC proposal is the result of these meetings.

The Workgroup is very pleased to be able to report to the Commission that it enthusiastically and unanimously supports the Diabetes Control and Prevention Program which the Center for Disease Control proposed to the Commission dated October 17, 1975.

The one area of continued concern on the part of the workgroup relates to the type of person which the CDC would recruit to head the program in Atlanta. Whereas Dr. Flynt indicated that the CDC envisions a person with public health training who would then be given special training in the problems of diabetes, the rest of the workgroup unanimously agrees that the person should be primarily a recognized and respected authority in diabetes, who could then be trained in public health and epidemiology. The capability for this latter training already exists at the CDC in Atlanta. The Workgroup strongly felt that for the program to be effective, the person heading it must have the cooperation and respect of the medical community interested in diabetes. Some also felt it would be important for this person to have had a previous successful career in laboratory or clinical research.

With this reservation, the Workgroup affirms its support of the CDC proposal.

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CENTER FOR DISEASE CONTROL

DIABETES CONTROL AND PREVENTION PROGRAM

PREPARED FOR THE NATIONAL DIABETES COMMISSION

OCTOBER 17, 1975

BIBLIOTECA DE LA FACULTAD DE FILOSOFIA Y LETRAS

CENTER FOR DISEASE CONTROL -- DIABETES CONTROL PROGRAM

The Center for Disease Control (CDC) can participate in the national diabetes control effort. One way is to develop a public health oriented diabetes control program. Such a program should be an integral part of any effort to narrow the gap between what is good care and management of diabetes patients and what is currently available to a significant segment of the U.S. population. Special attention to the public health community is important because it represents an existing framework for implementation of the diabetes control elements already enumerated by the National Diabetes Commission. These elements include coordination and communication among a variety of institutions and agencies; health planning and program evaluation; collection, analysis, and dissemination of data; and education and training.

This control program would be based upon fostering a series of state or more locally based diabetes control programs (community DCP). These are described below in more detail. The objectives of the public health oriented program will include:

1. Identifying, strengthening, and incorporating existing resources -- fragmentary as they may be -- into a more concerted control effort.

2. Making more accessible to the diabetes patient and family these existing and new program services.

3. Developing a data base for evaluating delivery of health services and measuring the impact of the control efforts upon local and national morbidity and mortality from diabetes and its complications.

4. Developing and maintaining a registry of diabetes control program resources.

5. Cooperating and collaborating with other agencies and organizations concerned with research and service to diabetic patients and families.

6. Providing for communication between the national and more local levels regarding new developments in research and delivery of health care services.

Implementation of community programs will also provide for identifying community settings suitable for conducting special studies related to diabetes. The participation by CDC in such studies would include:

1. Evaluation of screening methods, techniques, and follow-up mechanisms.

2. Evaluation and dissemination of training and educational materials and methods.

3. Documentation and investigation of unusual disease patterns reported by the community programs (e.g., juvenile diabetes case clusters, areas of excess morbidity or mortality).

4. Consultation regarding design and conduct of epidemiologic studies from existing or specially developed data from the locally-based programs.

5. Laboratory consultation and support in planning and conduct of these studies.

Community settings will also be used for studies that might be conducted by the local health agency. These will depend upon local needs and expertise, but could include development of diabetes case registries, identification and study of special risk groups, or evaluation of new methods for health care delivery to diabetic patients. Those areas with both a Diabetes Center and a community control program will be uniquely suited for collaborative projects interrelating research and control program services.

In addition to this control program, CDC can participate in still other ways in the national diabetes program. Special responsibilities for CDC have been suggested already in the course of Commission deliberations. These include laboratory support of national projects related to tissue control and serum repositories, special laboratory or epidemiologic assistance in collaborative projects, and responsibilities for a national clearinghouse for educational and training materials. Priorities for these and other projects will be suggested by the Diabetes Commission. However, before implementation, long term projects require detailed planning, discussion, and possible consideration of other resources than CDC. Participation by CDC in such discussions and projects will be considered according to Commission priorities and CDC staffing and funding commitments.

COMMUNITY PROGRAMS

Responsibility for organizing a state or local DCP would rest with a public health professional experienced in dealing with a variety of health professionals and organizations. Based on CDC's experience with other disease control programs, this assignment can best be handled by a public health advisor assigned to the state or local health agency. Some agencies may want to assign one of their own staff to the program. In either case the staff person would maintain close and continued working relationships with CDC.

A DCP advisor would have a college degree and some five years experience in a state or local health department directing another of CDC's present disease control programs. Selection for the DCP positions would be based upon previous experience, initiative, and ability to deal effectively with a variety of organizations and individuals. Each DCP advisor will receive approximately two months of training including instruction in concepts of diabetes pathogenesis, etiology, and treatment; principles of program evaluation; epidemiology; health education; and experience at a Diabetes Center or other exemplary diabetes program.

After training, the DCP advisor would assume responsibilities at the state or local health agency as a focal point for diabetes control activities. In this capacity he would serve as catalyst, innovator, organizer, and coordinator to effect improved delivery of patient services and evaluation of the control program. Specific responsibilities will include:

1. Developing and maintaining a control program resource registry including the location of educational facilities, summer camps, treatment centers, and screening programs, and of professional training programs for physicians, nurses, nutritionists, and other allied health personnel. This registry would include also information concerning resources identified at the national or regional level which are also applicable to local community needs.

2. Compiling information from local resources concerning utilization of services and costs to patients. Particular attention would be given to evaluation of program effectiveness.

3. Disseminating information about these resources to patients, physicians, health departments, and others who need or request such information. Informing health professionals of the diabetes problem and program, encouraging local education programs, and abetting efforts to follow-up known diabetics in current case loads.

4. Determining diabetes morbidity and mortality in the state, counties, or other local subdivisions, with special attention directed toward identifying areas with excess mortality, hospitalizations, diabetic comas, or other manifestations of suboptimal patient management.

5. Assisting in planning, coordinating and evaluating intervention programs needed to improve delivery of services. Such programs might include educational programs for patients, their families, and physicians in the high morbidity-mortality areas; a more rigorous and regular system of follow-up for known diabetics; or community-wide education and screening of high risk populations.

6. Sending locally collected data to CDC for compilation, analysis, and dissemination. The range of data available from these first efforts will vary considerably among local programs; however, the emphasis of local data use for planning services can serve also as a beginning of more systematic data collection systems. Continued improvement of local data resources and development of more standardized reporting, analysis, and dissemination of data can be expected to result in reliable state and then national data figures for ongoing assessment of the control program.

7. Organizing an advisory group composed of representatives from the medical societies, universities, health departments, and representatives of the voluntary health agencies and other appropriate local organizations. This advisory group would aid the health agency in determining community priorities for improvement or modification in control services and promote coordination of such efforts within the community.

The above activities might be considered as the basic core of a community program. Other elements will be needed to develop a more comprehensive community control program. These can be added to the basic core as funding and staffing resources allow and community needs dictate. In fact, some elements may already exist and be identified by the resource survey (Department of Agriculture Extension Services, Community Mental Health and Developmental Disabilities Centers).

These elements would include the following:

1. Nutrition counseling for adult and juvenile diabetics: Such services could be provided at one or more community locations, including university clinics, health departments, and special centers. Publicity

about the location and basis of operation of counseling offices and nature of their services, removal of cost barriers, and active outreach to patients would encourage use of these services.

2. Public, patient, and family education: Facts about diabetes essential for the general public and adult and juvenile diabetic patients (and their families) to know and understand should be compiled. Existing programs could be coordinated and others added to disseminate such information. These could include formal classes and discussion groups, as well as printed material.

3. Psychological support: Clubs or other organizations for juvenile and adult diabetics could be promoted along with summer camps for juvenile diabetics. In addition, counseling resources for handling special problems in this area would be identified. Diabetics would be referred by physicians, health department staffs, nutritionists, and others likely to recognize patients needing such services.

4. Physician information and education: A focal point within the community, perhaps as part of the resource registry, could inform physicians and respond to inquiries about where to refer patients with complicated problems. Plans could be made to conduct seminars to disseminate new scientific information and inform physicians of available local resources. These seminars would be conducted at various locales throughout the community.

5. Patient and family outreach: Concerted efforts should be made to make certain that patients, particularly those with special social or medical problems, are seen regularly. Public health nurses, school counselors, and others likely to have contact with these individuals could be involved in this effort. Follow-up of cases identified through screening programs should also become part of any outreach program.

CDC PROGRAM

The CDC support for the community programs will include technical and administrative support for the DCP advisor. In addition to training and staffing, ongoing support for DCP advisors would be provided through annual conferences, information exchange services, and consultations regarding various phases of work. Field staff would be furnished procedural guidelines for program evaluation, lists of known resources and sources of education materials, and help with disease surveillance and collection of morbidity and mortality data. Also CDC staff could be used for special local surveys to determine disease or complication prevalence.

Other responsibilities will include:

1. Coordinating control program activities with federal and non-federal institutions. These will include NIH, Health Services Administration, Health Resources Administration, other federal agencies, and the voluntary health agencies.

2. Developing local and national data collection methods for evaluation of control efforts. These will include provision of guidelines to insure standard terminology and reporting of community data and development of criteria for evaluating control program impact.

3. Collecting, analyzing, and disseminating data on diabetes morbidity and mortality, control program resources, and utilization of services.

4. Providing laboratory support for virologic studies and in terms of technical consultations for maintaining laboratory quality control, provision of reference standards, and development and evaluation of reference and routine methodologies for the determination of diabetes-related laboratory tests.

5. Providing consultative assistance to the community programs regarding surveillance, case registries, and epidemiologic studies, education and training of public health and other allied health professionals, and laboratory methodology.

6. Assessing and encouraging replication of effective educational programs for patients, families, and communities.

The CDC diabetes program will involve also a diabetes consultant committee to provide technical consultation regarding program content, priorities, and effectiveness; needs for special program efforts or new studies; and other recommendations regarding the diabetes effort. The committee will be composed of persons from public health, research, and clinical backgrounds, selected to represent a variety of federal and non-federal institutions. The committee would also include representatives from consumer and voluntary health organizations. Representatives from the proposed National Diabetes Advisory Committee would also be included on the CDC committee.

DEVELOPMENT, IMPLEMENTATION, STAFFING, AND FUNDING

Funding and staffing will involve two components: a CDC component and a community component.

CENTER FOR DISEASE CONTROL COMPONENT

The following description of CDC diabetes program activities includes both professional and clinical staff.

Program Direction and Administration: Provision of overall direction for CDC diabetes program, coordination with other agencies, consultation on new programs, grants, and contracts management. 7 Positions

Program Development and Evaluation: Guidelines development for community programs, standardization of data collection, epidemiologic studies, program evaluation, data analysis, preparation and dissemination of reports. 12 Positions

Education and Training: Development of training materials and training of DCP advisor; continuous evaluation and improvement of educational methods and materials for DCP advisors and other allied health personnel; technical assistance consultations with state and local DCP programs regarding training and education. 8 Positions

Field Operations: Recruitment, ongoing support, and supervision of DCP advisors; project officers for contracts; provision of on-site technical guidance for overall community DCP program. 7 Positions

Laboratory Services: Support of virologic and serologic studies; technical consultations regarding maintenance of laboratory quality control; evaluation of reference and routine methodologies for diabetes-related laboratory tests. 6 Positions

Total CDC Headquarters Staff: 40 Positions

Field Staff: For each community DCP program established, a DCP advisor position must be allocated.

COMMUNITY COMPONENT

An initial 20 pilot projects will be funded by contract mechanisms. Contingent upon their demonstrated effectiveness, a nationwide program will then be implemented using the grant mechanism authorized by Section 317 of the Public Health Services Act. The pilot contracts will be awarded to those state and local health agencies displaying a commitment and interest in a community diabetes program. Selection will be made to insure a mix of geographical locations, and a variety of populations served according to urban, rural, racial, ethnic, and socioeconomic characteristics. Attention will be paid also to funding contracts with state or local agencies near an already-functioning or proposed Diabetes Center.

Each contractor, in consultation with CDC, will develop staffing plans and cost proposals in line with existing resources and program needs. Considerable variation among communities can be anticipated. A sample plan and budget is shown:

Personnel	
1 DCP advisor (already described)	$ 25,000
½ Physician (within health agency to provide medical support and assistance to DCP advisor and diabetes program)	25,000
2 Information/Education Specialists; Nutritionists, Nurses (Program support in information, education, outreach, programs for diabetic patients, and families)	33,000
2 Clerks/statistical assistants (data collection, processing, analysis, secretarial support)	23,000
Travel	
Staff travel in service area for program operation; travel for staff and other local persons for training, education, conferences	8,000
Materials and supplies	
Office equipment and supplies, postage, distribution of information and educational materials, phones	10,000
Overhead	26,000
TOTAL	$150,000

The Diabetes Control Program will be developed and implemented in three phases. During the first phase (Years 1 and 2), 20 DCP pilot projects will be established, ten each year. It should be noted, however, that the initial ten pilot projects cannot be implemented immediately. The awarding of these contracts cannot occur without approximately six months of essential developmental lead time, which will include recruitment of headquarters staff and DCP advisors, necessary time for the procurement process, and the training of the DCP advisors. During this time, there will also be discussions with existing state and local health programs, particularly concerning current diabetes-related activities. These discussions will provide information regarding present program needs, deficiencies, problems, and available data and control program resources. During this period,

other federal agencies and programs will also be contacted regarding activities that might involve the diabetes control program. These would include NIH, Health Services Administration, Health Resources Administration, the Health Systems Agencies, the Professional Standards Review Organizations, and Social Security Administration. The information and experience gained from these contacts will be used to develop more specific plans and guidelines for implementation of the second phase.

During the second phase (Years 3 and 4), the program will be expanded to 40 projects and the funding mechanism switched from contracts to grants. The results and experience gained from these programs will be used to formulate guidelines and recommendations for establishing a national program (Years 4 and 5).

Attached is a summary of projected staff, funding, and timetable for development of this program.

Resources Required to Initiate a Diabetes Control and Prevention Program

Center for Disease Control

$ in Millions

	Funding		Positions
	Mechanism	Amount	
Year 1			
A. 10 DCP pilot projects	Contracts	$ 1.5	10
B. CDC technical and administrative support. Program development.	Direct Operations	$ 2.1*	40
Total		$ 3.6	50
Year 2			
A. 20 DCP pilot projects -- including the 10 funded previously	Contracts	$ 3.0	20
B. Continued CDC Program	Direct Operations	$ 2.1	40
Total		$ 5.1	60
Year 3			
A. Expand to 40 Control Projects	Grants	$ 6.0	40
B. CDC Program	Direct Operations	$ 2.4	45
Total		$ 8.4	85
Year 4			
A. Nationwide DCP program	Grants	$ 8.0	60
B. CDC Program	Direct Operations	$ 2.6	50
Total		$10.6	110
Year 5			
A. Nationwide DCP program	Grants	$ 8.0	60
B. CDC Program	Direct Operations	$ 2.6	50
Total		$10.6	110

* Includes salaries, fringe benefits, contracts for special headquarters studies in development and evaluation, education, and training, laboratory services, and travel for headquarters staff.

Report of the

WORKGROUP ON

NATIONAL SYSTEM FOR DIABETES DATA RESOURCES

to the

National Commission on Diabetes

Chairman:

Arlan Rosenbloom, M.D.

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WORKGROUP ON

NATIONAL SYSTEM FOR DIABETES DATA RESOURCES

of the

National Commission on Diabetes

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NATIONAL SYSTEM FOR DIABETES DATA RESOURCES (NSDDR)

I. PROBLEM

A. NEEDS:

The needs of a national diabetes effort are perceived by the various workgroups of the National Commission on Diabetes to include coordinated data collection to:

1. Assess the social and economic impact of diabetes.
2. Determine whether there is a changing frequency of diabetes.
3. Determine distribution patterns by age, sex, geographic area, ethnicity, and within families.
4. Identify aggregations of cases.
5. Ascertain the contribution of diabetes to mortality.
6. Determine health care, program and training needs for diabetes.
7. Determine cost effectiveness and cost benefits of education, treatment and screening programs.
8. Register persons with unusual or specific forms of diabetes for collaborative investigations.
9. Provide a resource for knowledge of current investigational metabolic disorders.

B. NEED FOR STANDARDIZATION:

The accumulation, collation, and interpretation of data for clinical, epidemiologic, and genetic studies require standardization of basic data collection and terminology.

II. IMPACT

The lack of adequate data impairs planning and evaluation of services for persons with diabetes and inhibits research into the causes, treatment, and natural course of diabetes, especially as it relates to chronic complications.

III. STATE OF THE ART

1. Diabetes is recognized as a significant health problem by the National Diabetes Act which requires the careful and continuous accumulation of data of many types.

2. However, problems of fragmentary data, gathered in ways that are not comparable, and lack of compilation and focus by any single body, have impaired attempts to assess the magnitude of the diabetes problem. Likewise, the evaluation of the impact of the disease and its chronic complications, its contribution to mortality, patterns of inheritance, age and sex distribution, and cost effectiveness of screening and therapeutic efforts is also frustrated. Brooke has emphasized that many theories are promulgated and extensive research projects and service programs are established on the basis of statistical findings from population data. Thus, the quality of such data is extremely important. The paucity of information reflects the chronic dearth of resources available for diabetes.

It has been suggested that a National Diabetes Registry be developed which could provide prevalence data, demographic information, health care data related to diabetes, and identify a population available for a variety of genetic, therapeutic, and natural history studies. Additionally, it had been proposed that a registry might be useful for disseminating diabetes educational information. Basic problems in the establishment and sustenance of a registry involve the need for a clear-cut set of goals with high motivation and involvement of the persons responsible for the initiation and service of the registry. Additional problems in a registry for diabetes are the bias of a voluntary registration and problems of confidentiality.

Pertinent to the consideration of a National Diabetes Registry is the question whether there are successful registers in other countries. In England registration of newly diagnosed insulin-dependent youngsters has been solicited only since 1972. This side-steps the difficulty of confirming diagnosis in non-insulin-dependent patients and greatly reduces the number of patients that need to be registered. Nonetheless, compliance appears to be concentrated principally around medical centers where interest is high. Sweden does not have a diabetes registry per se, but does have records on all school-going children with diabetes because the school health program is a source of their medical care. This data has not been promulgated. Bulgaria has .5% of its 8.5 million population registered as diabetic patients and is the only country which claimed to have a National Diabetes Registry according to the recent World Health Organization survey. A potential national registry exists in Canada where all medical care is provided through Provincial Health Insurance plans. Similarity of the health care system to that of the

United States as well as the similar socioeconomic status of the population make this data resource interesting. It is noteworthy that this resource has not been exploited because there has not been a provincial or national Canadian program needing the information. The single exception has been Simpson's analysis of records of the relatively stable Prince Edward Island population. This analysis was used to develop diabetes risk data.

It has become axiomatic that valid data can only be obtained when the person obtaining the data is able to see the programmatic context of the activity as well as the program ends served. This is best accomplished by a high level of program presence which includes coordinated services to patients, educational services to health personnel, and feedback emphasizing the importance of the data collected. Such a constituency would be impossible to sustain nationally but certainly could be accomplished in some regions of the United States.

The challenge to develop a system to coordinate, standardize, analyze, and disseminate "all data useful in the prevention, diagnosis, and treatment of diabetes mellitus"* need not imply only novel collection efforts or singular design. Prevalence information of known and unknown diabetes in adults, for example, can be provided by a properly advised National Health Interview and Examination Survey. For children and youth, however, population-based registration is needed in a number of areas to determine ethnic, sex, socioeconomic, viral infection, and other influences. In the development of longitudinal studies of treated children and youth and both treated and untreated adults, registration need not be complete but sampling must be representative.

IV. FUTURE DIRECTIONS

A. GOAL:

The development of a system that will provide a valid data base for planning and evaluation of services for persons with diabetes and research into the causes, treatment, and natural course of diabetes.

B. SPECIFIC OBJECTIVE:

Establishment of a national system for diabetes data resources to standardize diabetes data collection, coordinate existing and future

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*PL 93-534 sec 3e:7

data resources, guide the development of data collection systems aimed at specific questions, and provide pertinent information to persons and organizations concerned with diabetes.

C. APPROACHES:

The strategy proposed is to establish a structure within which the specific objectives are served. The elements of that structure are designed to utilize and coordinate existing data resources, to focus their expanded efforts under the National Diabetes Act and to emphasize coordinated data collection, analysis, and dissemination from the inception of new diabetes programs.

The major components (see exhibit 1) of the National System for Diabetes Data Resources (NSDDR) are the National Institutes of Health, the Center for Disease Control and a proposed National Diabetes Data Group (NDDG). Their responsibilities to the NSDDR are:

1. NIH (see exhibit 2).

    a. National information center for diabetes research.

    b. Annual publication of a compendium of current diabetes research (clinical, basic, epidemiologic).

    c. Stimulation and review of diabetes population research.

    d. Liaison (planning, coordination, data analysis) with CDC, NDDG.

2. CDC (see exhibit 3)

    a. Standardization of terminology, methodology and data collection.

    b. Fostering of local, regional, and state diabetes control programs and data systems.

    c. Clearinghouse for diabetes program information.

    d. Collection, analysis, and dissemination of epidemiologic data pertinent to diabetes control.

3. NDDG (see exhibit 4)

    a. Fostering of collection, analysis, and dissemination of diabetes data related to public policy concerns.

NATIONAL SYSTEM FOR DIABETES DATA RESOURCES (NSDDR)

MAJOR COMPONENTS

- NATIONAL INSTITUTES OF HEALTH
- CENTER FOR DISEASE CONTROL
- NATIONAL DIABETES DATA GROUP

EXHIBIT 2

NSDDR

NATIONAL INSTITUTES OF HEALTH

RESPONSIBILITY

- NATIONAL INFORMATION CENTER FOR DIABETES RESEARCH
- COMPENDIUM OF CURRENT DIABETES RESEARCH (CLINICAL, BASIC, EPIDEMIOLOGIC) PUBLISHED ANNUALLY
- STIMULATION AND REVIEW OF DIABETES POPULATION RESEARCH
- LIAISON (PLANNING, COORDINATION, DATA ANALYSIS) WITH CDC, NATIONAL DIABETES DATA GROUP

NSDDR

CENTER FOR DISEASE CONTROL

RESPONSIBILITY

- STANDARDIZATION OF TERMINOLOGY, METHODOLOGY AND DATA COLLECTION
- FOSTERING OF DIABETES CONTROL PROGRAMS
- CLEARING HOUSE FOR DIABETES PROGRAM INFORMATION (RESOURCE REGISTRY)
- COLLECTION, ANALYSIS AND DISSEMINATION OF EPIDEMIOLOGIC DATA PERTINENT TO DIABETES CONTROL

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EXHIBIT 4

NSDDR

NATIONAL DIABETES DATA GROUP

RESPONSIBILITY

FOSTERING OF:

- COLLECTION
- ANALYSIS
- DISSEMINATION OF DIABETES DATA RELATED TO PUBLIC POLICY CONCERNS

b. Publication of a Diabetes Source Book every five years.

c. Development of international liaisons to foster data collection from other countries, especially Canada.

D. PROJECTS:

Specific projects relating to data needs are addressed by appropriate workgroup and subcommittee reports. The projects noted here are pertinent to the data collection system per se.

1. National Information Center for Diabetes Research: The purpose of this project is to provide a central resource for individuals and groups seeking information on current investigational efforts in diabetes. Resources already exist for collection and dissemination of information of investigational efforts in diabetes and related endocrine and metabolic disorders. Two such resources are the National Library of Medicine (completed and published research), which is currently being used by the National Institute of Arthritis, Metabolism, and Digestive Diseases in two publications, Diabetes Literature Index and Endocrinology Index and Smithsonian Science Information Exchange (current research). These require increased financial support and participation by users to improve quality, completeness, and value. Implementation should be immediate at a cost of approximately $200,000. (See Appendix.)

2. Compendium of Current Diabetes Research: The purpose of a compendium on current diabetes clinical, basic,and epidemiologic research is dissemination of the current research component of the National Information Center for Diabetes Research. Editorial commentary and discussion of directions would be needed to provide guidance to a potential investigator or organization supporting the research. NSDDR goals would be met through stimulation of investigations and increased diabetes visibility. Implementation should be early and part of the cost for the National Information Center for Diabetes Research. (See Appendix.)

3. National Diabetes Data Group (NDDG) (see exhibit 5): This project is designed to foster collection, analysis and dissemination of diabetes data of importance in public policy decisions. (See Project Summary sheet for details.) Implementation should be immediate at an annual cost of $200,000.

4. Health Statistics Data Library: This project would lie within the responsibilities of the NDDG. It would permit public access to clean data tapes, and necessary documentation of health related data collected by the various components of the NSDDR.

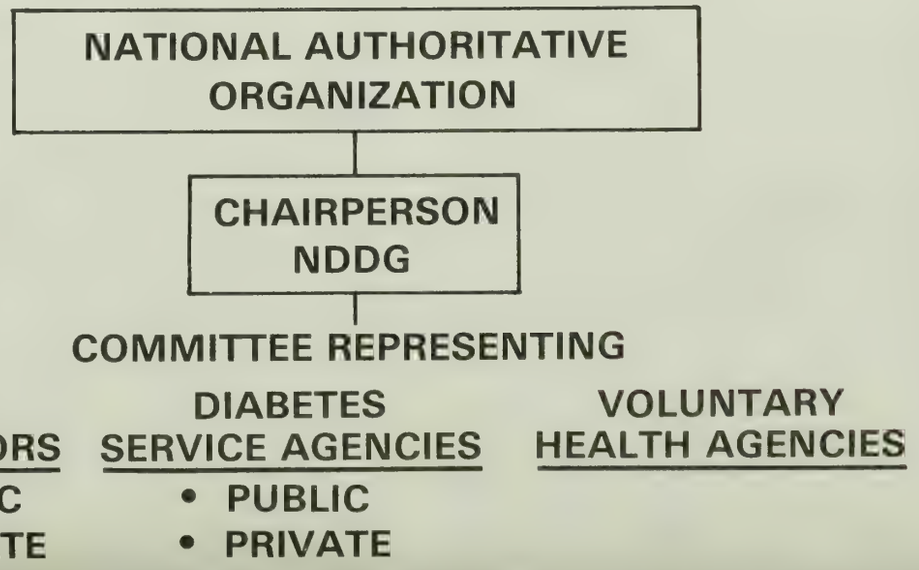
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EXHIBIT 5

NSDDR

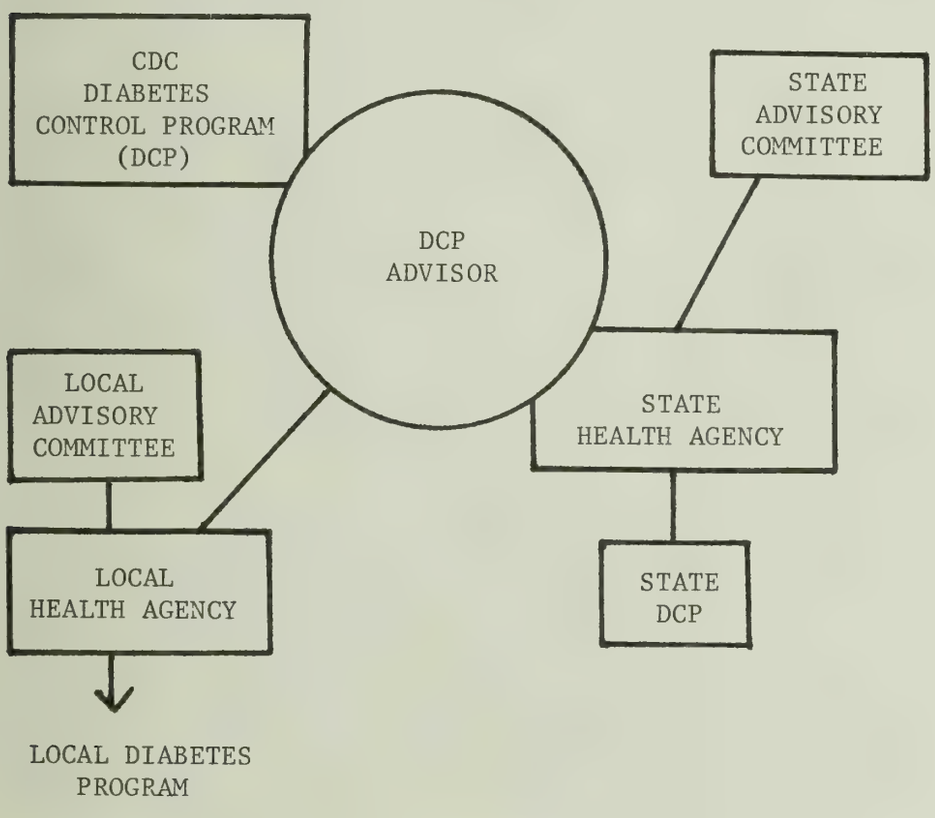
NATIONAL DIABETES DATA GROUP (NDDG)

ORGANIZATION



5. Diabetes Source Book: The NDDC should immediately address the task of developing guidelines for information to be included in a new book to be published within 6-12 months. Plans should also be made for subsequent volumes which would be published every five years. Rather than accumulation and presentation of any data available, organization should be directed to the purpose(s) data will serve (e.g., planning of services, patient counseling, national priority setting) or hypotheses to be tested. The initial publication attempt will emphasize data needs and the improvements necessary for implementation of data collection for the next edition. Funding is covered in Item 3 above.

The development of a Diabetes Control Program by the Center for Disease Control requires standardization of data collection, integration with service programs and feedback to meet a wide range of public and private informational needs. The details of the CDC program are presented elsewhere (see the Report of the Workgroup on the CDC, Vol. 3, Part 6); a diagram of the relationships between CDC and local programs follows:



6. Regional Diabetes Program - Standardization: In order to insure that data obtained in local, regional and state programs are standardized in terminology and methodology, the Center for Disease Control will develop standards for collection of data in conjunction with the other major units of the National System for Diabetes Data Resources. Standardization and unification will be facilitated by the development of computer scanning techniques for data recording.

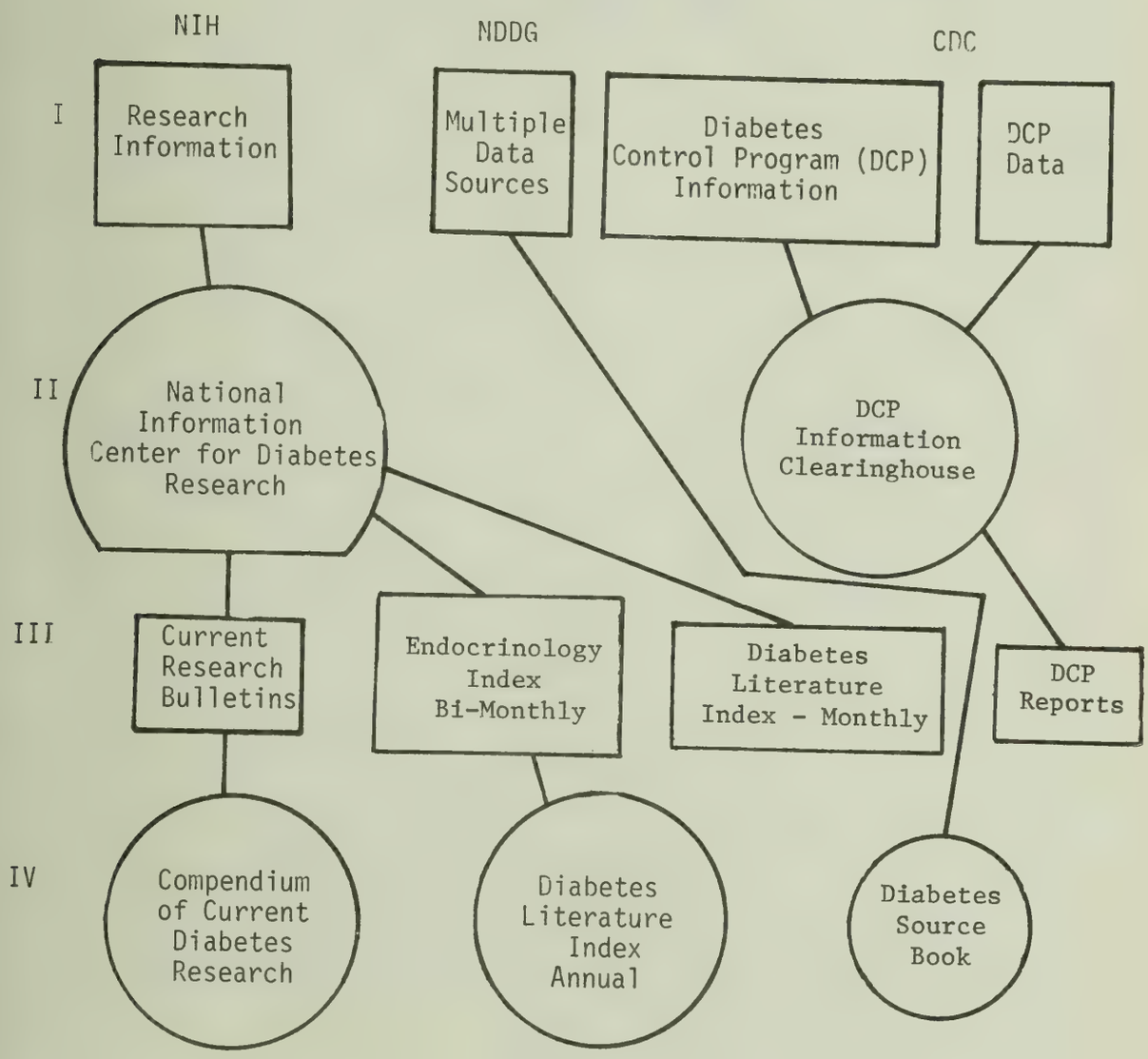
7. Diabetes Control Program - Service-Integrated Data System: This aspect of the Diabetes Control Program is a pilot project to test the standardized data collection with all new and on-going cases in a community. This project is instrumental in developing a system for identifying consultative, educational, dietary, and other needs for assisting the community to provide optimal diabetic care. Such a community-wide project would require development with a local advisory group and cooperation with all health personnel working with persons with diabetes. This would clearly require that a value be returned to the providers of these services by the diabetes control program individuals and a value be perceived for the data accumulated. Since the local diabetes program is the functional unit of the diabetes control program and the data resource, this pilot approach will be essential to avoid costly error and permit adjustments in methodology and attitude.

8. Diabetes Control Program - Information Clearinghouse: The purpose of this project is to provide a resource registry for patients, professionals of all types involved with diabetes, and organizations with an interest in diabetes. It will also provide a source of reference for current epidemiologic data to interested persons and organizations. This clearinghouse would bring together information regarding resources available from the other components of the National System of Diabetes Data Resources as well as resources from voluntary health organizations and local and state diabetes control programs. The clearinghouse would either directly respond to informational and program needs or provide appropriate referral to original sources.

9. Diabetes Control Program - Reports: The report of the DCP will reflect the activity of the program and should be a pertinent and useful feedback to the collectors of data at the local program level. Additionally, the reports will be collated by the NDDG as it develops the quinquennial report and periodic updates. The reports will form part of the source of the DCP information clearinghouse as well. The reports will be dispersed to the public upon request, in a standardized fashion, by the local and state diabetes control programs at the Center for Disease Control. The type of data which could be included in a unitized system would appear at several levels of complexity which could be separated into modules. Health professionals involved with the patients would have access to data as to a medical record. Communication of educational materials or recruiting the patients for research purposes would require

the approval of the local advisory group and the patients. Data accumulation at the state level would be without the capability of coding by name,and transmittal of data to the national system at CDC would be similarly anonymous.

In the following diagram these projects are depicted at four levels. Level I, data and information gathering, is identified with the appropriate organizational element. Level II comprises the two information services. Level III illustrates the frequent bulletins and reports, and Level IV shows the three developed publications.



V. REFERENCES

1. Brooke, E.M.: The current and Future Use of Registers in Health Information Systems. WHO Offset Publication No. 8, 1974.

2. Murnaghan, J.H.: Health Services Information Systems in the United States Today. New Eng. J. Med. 290:603-610, 1974.

3. Rosenbloom, A.L.: The Natural History of Diabetes Mellitus. Public Health Reviews, 2:115-154, 1973.

4. Simpson, N.E.: Diabetes in the Families of Diabetics. Canad. Med. Ass. J. 98:427-432, 1968.

VI. PROJECT SUMMARY SHEETS

PROJECT SUMMARY SHEET -- NSDDR-1

PROJECT TITLE: NATIONAL INFORMATION CENTER FOR DIABETES RESEARCH

OBJECTIVE: To provide a central resource for individuals and groups seeking information on investigational efforts in diabetes and to facilitate review of potential data sources and uses.

APPROACH TITLE:

Collation of information on investigational efforts in diabetes.

DESCRIPTION OF PROJECT:

Information on past and current research relative to diabetes will be collated and available to individuals, groups, and agencies for information or planning. Such a collation will facilitate review of potential data sources by the National Diabetes Data Group. (See Appendix for details)

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. The establishment of responsibility in appropriate federal or private agencies (e.g., NIAMDD, National Library of Medicine, Smithsonian Science Info. Exchange).
2. Development of liaison with all public and private organizations and individuals engaging in diabetes research.

PRESENT STATUS:

The National Diabetes Act directed the National Institutes of Health to form a Diabetes Mellitus Coordinating Committee to bring together a compendium of diabetes activities in the federal system. The Smithsonian Science Information Exchange has on file some 2000 diabetes-related research project summaries from federal and non-federal sources, and this system could readily be expanded to improve collection, collation and dissemination. Information on completed and published research efforts in diabetes and related endocrine metabolic disorders is available through the literature index published by the NIAMDD.

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INPUT REQUIRED:

An estimated budget of $200,000 per year would be required to improve the data collection of the Smithsonian Science Information Exchange and produce reports.

FORM OF RESULTS:

Increased visibility and knowledge of research activities by interested persons, organizations and stimulation of increased numbers of research applications. Increasing use of custom searches and improving quality of individual research reports.

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PROJECT SUMMARY SHEET -- NSDDR-2

PROJECT TITLE: COMPENDIUM OF CURRENT DIABETES RESEARCH

OBJECTIVE: To assure that data about diabetes clinical, basic, and epidemiologic research is collected, integrated,and disseminated (supplement to National Information Center for Diabetes Research project).

APPROACH TITLE:

Periodic publication of a compendium of current diabetes research.

DESCRIPTION OF PROJECT:

Purposes of this project extend those of the current research component of the National Information Center for Diabetes Research; the publication of a Compendium allows for editorial commentary and discussion of research directions which can guide the potential investigator or assist in planning by organizations.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

Same as for National Information Center for Diabetes Research.

PRESENT STATUS:

Same as for National Information Center for Diabetes Research.

FORM OF RESULTS:

1. Quarterly publication of 6-10 research bulletins dealing with specific areas of research.
2. Annual publication of Compendium on current diabetes clinical, basic,and epidemiologic research.

(See Appendix)

PROJECT SUMMARY SHEET -- NSDDR-3

PROJECT TITLE: NATIONAL DIABETES DATA GROUP

OBJECTIVE: To insure that data on diabetes from multiple sources be collected and disseminated.

APPROACH TITLE:

National Diabetes Data Group to foster the collection, analysis, and dissemination of diabetes data relating to public policy concerns.

DESCRIPTION OF PROJECT:

A permanent National Diabetes Data Group will be established by law. The chairperson will be appointed on the basis of merit by an appropriate supervisory agency (e.g. the National Committee for Vital and Health Statistics); he or she will be responsible for appointing other members of the group who will represent the data resources to be integrated. These resources will include public data collectors (The Center for Disease Control, The National Center for Health Statistics, The National Center for Health Services Research, NIH), private data collectors (Smithsonian Science Information Exchange, National Disease and Therapeutic Index, Medic-Alert), public diabetes service agencies (Veterans Administration, Social Security Administration), private diabetes service agencies (teaching hospitals, medical groups), and voluntary health agencies (American Diabetes Association, Juvenile Diabetes Foundation).

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Permanent establishment with adequate staffing and funding.
2. Appointment of Chairperson on merit recognized by all participating agencies.
3. Appointment of the work group by the chairperson with assurance that all members have credentials in diabetes and vested interest in successful data accumulation.

LIBRARY U. OF I. URBANA CHAMPAIGN

PRESENT STATUS:

There is presently no unit or office which brings together data from multiple sources bearing on diabetes epidemiology and scope.

INPUT REQUIRED:

Salary for 20% time chairperson, full time secretary and staff and funds necessary for meetings, workgroups, and compilation and publication of the quinquennial Diabetes Source Book. Additional funds will be necessary for contracting for the collecting and analysis of data by non-governmental agencies.

FORM OF RESULTS:

1. Quinquennial Diabetes Source Book
2. Increased volume of data available for the Diabetes Source Book
3. Increased consistency and quality of data available for the Diabetes Source Book indicating influence on the data collected and its analysis by the DDG.

PROJECT SUMMARY SHEET -- NSDDR-4

PROJECT TITLE: HEALTH STATISTICS DATA LIBRARY

OBJECTIVE: To establish a library of data relevant to diabetes and other acute and chronic diseases to enable access to already existing and future data such as that collected in the National Health Interview and National Health Examination Surveys.

DESCRIPTION OF PROJECT:

To establish a library for public access containing data tapes and necessary documentation of health related data, to be made available as a service to interested investigators and agencies.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Establishment of the National Diabetes Data Group.
2. Facilities to copy data tapes and documents at a reasonable cost.
3. Staff and funds necessary to continually maintain and update the library.
4. Publication of availability of specific data sets and additions as they become available.

PRESENT STATUS:

Limited (and delayed) access to selected data collected by National Center for Health Statistics.

INPUT REQUIRED:

Directives to appropriate data collection agencies to supply appropriate information for public usage.

FORM OF RESULTS:

Better reporting of Health Statistics, and alternatives analyses which would more fully exploit existing resources.

PROJECT SUMMARY SHEET -- NSDDR-5

PROJECT TITLE: GUIDELINES FOR DIABETES SOURCE BOOK

OBJECTIVE: Assure that data about diabetes of public health concern be collected, integrated, and disseminated (supplement to "National Diabetes Data Group" Project).

APPROACH TITLE:

Working group to set guidelines for a Diabetes Source Book

DESCRIPTION OF PROJECT:

The group would address the vital and health statistics related to diabetes by asking the following questions in the following order:

1. What purpose will the knowledge serve? Example: Planning of services, patient counseling, assignment of national priority, etc.
2. Specific hypothesis testing question related to purpose.
3. Data presentation necessary for hypothesis testing, tabulation, analysis, and interpretation.
4. Recommended improvement in type and quality of data collection and analysis and suggested mechanisms to implement recommendations.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Constitution of workgroup.
2. Provision of funds and personnel to support workgroup activities.

PRESENT STATUS:

A beginning has been made in various workgroups of the National Diabetes Commission to compile statistics about diabetes. The value of much of the data that has had to be used to compile these statistics is limited because original accumulation was often without clear objectives and data from multiple sources were obtained in different ways.

FORM OF RESULTS:

Guideline to the quinquennial diabetes source book production.

PROJECT SUMMARY SHEET -- NSDDR-6

PROJECT TITLE: DIABETES CONTROL PROGRAM - STANDARDIZATION

OBJECTIVE: Insure that data obtained in local, regional,and state programs is standardized in terminology and methodology for national utilization and comparison.

APPROACH TITLE:

Standardization of Terminology, Methodology,and Collection of Epidemiologic and Program Data

DESCRIPTION OF PROJECT:

In conjunction with other major units of the National System for Diabetes Data Resources (NIH, NDDG), the Center for Disease Control will develop standards for the collection of data in the diabetes control programs which will provide a core of uniform data. One method that will facilitate the standardization and unification will be the development of computer scanning for this data.

KEY EVENTS CRITICAL TO THE SUCCESS OF PROJECT:

1. Diabetes control program within the Center for Disease Control.
2. Appointment and training of diabetes control program advisors.
3. Funding of state and local diabetes programs.
4. Appointment and/or identification of state and local agents in diabetes control programs.

PRESENT STATUS:

Methodology is adequate for the task to begin when the key events are completed.

INPUT REQUIRED:

See CDC proposal.

FORM OF RESULTS:

Body of reference data usable in program planning and evaluation.

VII. APPENDIX

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
ARCHIVES

A Proposal to Establish and Operate a National Information Center for Diabetes Research

A. Background and Statement of the Problem

The National Diabetes Mellitus Research and Education Act of 1974 directs the formation, under the authority of the National Institutes of Health, of a National Commission on Diabetes. One of the tasks of this Commission will be the establishment of:

> a system for the collection, analysis and dissemination of all data useful in the prevention, diagnosis, and treatment of diabetes mellitus.

It is further directed to plan for:

> establishment of programs that will focus and apply scientific and technological efforts involving biological, physical, and engineering science to all facets of diabetes mellitus;

and for the:

> appropriate distribution of resources between basic and applied research.

In order to implement these directives, the workgroup of the Commission studying data needs proposes the organization of a National System for Diabetes Data Resources (NSDDR):

> to standardize diabetes data collection, coordinate existing and future data resources, guide the development of data collection systems aimed at specific questions, and provide pertinent information to persons and organizations concerned with diabetes.

1. The three major components of NSDDR would be the National Institutes of Health (NIH), The Center for Disease Control (CDC), and a proposed National Diabetes Data Group (NDDG). Among the responsibilities of NIH within this system would be:

   a) establishing a National Information Center for Diabetes Research

   b) annual publication of a Compendium of Current Diabetes Research

c) liaison with CDC and NDDG.

2. The Smithsonian Science Information Exchange (SSIE) is ideally suited to provide the type of services just described, for the following major reasons:

a) SSIE has an established data collection network which operates as a support service to the U.S. Government to collect information about research in progress.

This Government affiliation and endorsement should make the task of strengthening and improving the input coverage more successful. SSIE operates as an integral part of the Smithsonian Institution. Since its establishment in 1949, the data collection network has developed to include all federal agency research programs (about 80,000 projects per year). In the field of diabetes research, SSIE already receives descriptions of NIH-supported grants, contracts, and intramural research, as well as the diabetes-related programs of other federal agencies, private health agencies and foundations. Channels of communication also exist with foreign countries which may assist the input of new material on diabetes.

b) SSIE has established mechanisms for continuous updating of all projects received, so that each ongoing research effort will be represented by a new summary each year whenever possible.

c) The SSIE staff is made up of individuals with graduate level backgrounds of training and research experience in subject disciplines relevant to diabetes research.

The present SSIE staff represents tens of thousands of man hours of experience gained in the analysis and indexing of hundreds of thousands of research project descriptions, and includes both continuity and stability: some scientific staff personnel have been with the Exchange since the 1950's.

d) SSIE has a flexible hierarchical indexing system.

Projects are assigned to as many categories as necessary to fully describe the subject content and insure that as much detail as is available in the project description is preserved in its representation in the computer record, not as isolated specific words but in a context which permits retrieval of broader concepts which subsume these words.

Major indexes deal with subject areas of major concern, and can be modified independently of one another. The index structure is not fixed or rigid. Instead,categories are created or extensively changed at will. This approach has the necessary flexibility to incorporate the conceptual requirements needed by the Diabetes Information Center.

e) SSIE has experience in setting up an information center for current cancer research.

Since January 1, 1975, SSIE has been functioning as the Current Cancer Research Project Analysis Center (CCRESPAC) under the International Cancer Research Data Bank (ICRDB) Program. As such, it has gained considerable experience in soliciting and processing input from foreign and domestic sources hitherto untapped, and in developing expanded index structures to fit the needs of specific disease-oriented data banks. The presently workable volume of material related to diabetes mellitus is far less than that registered and relevant to cancer, so that the management of this material should pose no problem even if it doubled in amount.

B. Scope of Effort

The Smithsonian Science Information Exchange (SSIE) proposes to support the efforts of the NIH component of the National System for Diabetes Data Resources (NSDDR) and the National Institutes of Health by establishing a National Information Center for Diabetes Research which will collect, analyze, index, store,and disseminate brief descriptions of diabetes-related research in progress (including protocols) in countries throught the world. This support will be provided in four areas:

1. Identify new sources of input of diabetes project descriptions (including sources outside the U.S.), collect and index project descriptions from these new sources, and expand coverage of existing sources. Improve hierarchical classifications and other vocabulary usage for project indexing and retrieval.

2. Provide retrieval services to all investigators and administrative personnel interested in diabetes research, to include both routine selective dissemination of information and custom searches of the file, based on detailed subject retrieval capability alone or in combination with administrative information retrieval.

3. Prepare quarterly research bulletins dealing with specific subject areas, and distribute to those active in the field of diabetes.

4. Produce an annual Compendium of Current Diabetes Research. Actively disseminate this compendium as a means of encouraging and stimulating comprehensive input of new work, and as a practical tool for use by those involved in research on diabetes.

5. Undertake other tasks requiring technical subject competence (such as special indexing or abstracting tasks) as required by the NSDDR Program.

C. Technical Approach

TASK 1: GREATLY EXPAND INPUT ACQUISITION AND IMPROVE METHODS FOR INDEXING AND RETRIEVING DIABETES RESEARCH PROJECT DESCRIPTIONS.

The two major subtasks under Task 1 are (1.1) acquisition of new diabetes project descriptions, and (1.2) development and improvement of new conceptual approaches to indexing of diabetes-related data.

Subtask 1.1 IMPROVE INPUT COVERAGE

Subtask 1.1 involves the acquisition and processing of diabetes project descriptions, and provides direct support to the solicitation of additional and/or more definitive reports of research in diabetes. This effort shall include expanding the participation of domestic, foreign,and international agencies concerned with diabetes and related activities and arranging for the provision of diabetes related project descriptions to the SSIE system; identification of incomplete or faulty reporting procedures; and the active solicitation and acquisition of additional or improved reports of research in diabetes and related subject areas.

1.1a Develop detailed plan of procedure for Task 1.1, and deliver to NSDDR Program Officer for Review.

Initial efforts under Task 1.1 will be devoted to the development of a detailed plan and procedures, for delivery to the NSDDR Program Officer for review and approval.

Ongoing research covered under the NSDDR Program falls into two classes, for purposes of this SSIE effort.

1. CLASS 1: New project descriptions which must be identified and obtained for the data base.

2. CLASS 2: Those project descriptions from programs already represented in the SSIE data base.

Activity 1.1.1 - For Class 1 Projects, identify new sources of project descriptions, including those outside the U.S.

For Class 1 projects, where no arrangements exist for input to the Exchange, Task 1 of this Agreement will provide staff for active contact of national and international sources to obtain new project descriptions. This will involve communication with organizations equivalent to SSIE in other countries, with diabetes research centers and control programs in this country and abroad, and with other granting organizations.

These contacts will involve negotiation of a mechanism for annual updating of diabetes project descriptions by individual investigators, either directly, through NIH, through an intermediary organization, or through key diabetes researchers or centers in foreign countries.

Activity 1.1.2 - Actively collect new diabetes research project descriptions from newly identified sources.

Subsequent to the establishment of liaison arrangements and channels for the reporting of new project input, periodic communication with these sources will allow the continuation of the input on a regular basis. These arrangements will also permit updating of each project on a regular basis as discussed below, as is the practice with hundreds of SSIE's reporting sources at the present time. A computer-based tabulation of project input received from each source is maintained and printed out monthly for reference purposes. While not specific to the field of diabetes research, this shows the project count from each source for the two current fiscal years of the SSIE active search file, as well as comparable input for the same period in the previous year.

SSIE will identify duplications (the same project submitted from more than one source) and will delete the duplicates.

Translation which is not done in the country of origin will be done at SSIE or by subcontract; if necessary, funds for this purpose will be diverted from other activities to the extent required.

As in the case of Class 2 project arrangements, this Agreement will provide support for checking on comprehensiveness, improving quality, and ensuring a priority approach to acquisition and processing of diabetes-related projects.

Activity 1.1.3 - For Class 2 Projects, check completeness and expand collection of diabetes projects from existing sources.

For Class 2 projects, Task 1 support will provide necessary staff and resources to:

a. give priority attention to the acquisition and processing of diabetes-related input into the data bank: this will reduce input lag time from receipt of project descriptions to their incorporation into the data bank to a minimum level (approximately two to three weeks);

b. improve liaison with existing sources of input, including diabetes research centers, other diabetes research organizations, government and non-government granting agencies and programs, and information organizations comparable to SSIE around the world;

c. make a monthly check of project listings from source agencies, when available, to ensure that all projects are entered into the SSIE system (for example, in the case of NIH supported projects a monthly check of grant and contract obligation lists will be undertaken; a monthly listing and/or tape of new projects will be obtained from the Division of Research Grants, NIH);

d. design and prepare tabulations of current projects by agency, subject areas, investigators,and others as may be agreed upon; these tabulations will be reviewed with NIH and/or committees designated by NIH to obtain opinions and suggestions regarding the comprehensiveness of the data base;

e. improve the quality of descriptions submitted for registration, by organizational or individual review of summaries prior to their use in the Compendium of Current Diabetes Research by more systematic approaches to the update of summaries, or by requesting the inclusion of specific types of information in a specified order in standardized reports; and

f. update each diabetes project description which is not received from a supporting organization on an annual basis, by returning it to the principal investigator; this would be done one to three months prior to its expiration date as listed with SSIE for the current year or at the time of its use in the Compendium of Current Diabetes Research, with an explanation of why an accurate up-to-date summary of his research plans for the coming year is essential.

Based on its own analysis and on the comments and recommendations received, SSIE will request the assistance of the appropriate agencies in improving the quality, timeliness and coverage of their input to the Exchange. SSIE will also prepare, and review with the NSDDR staff, recommendations with respect to further action considered necessary or desirable to bring the comprehensiveness of SSIE's coverage to the highest level obtainable within the time and resources available.

Activity 1.1.4 - Make minor system changes as necessary to accommodate special requirements.

Although the initial operation of the Information Center will make use of the basic SSIE programs and procedures, it is envisioned that minor system changes will in all likelihood be required, as with any new program. These include the addition of selected types of specific information to the text section of the project description, the adaptation of the text section for complete and accurate representation of names which have been abbreviated in their appropriate data fields, and the establishment of special system flow checks and techniques for the expeditious processing of diabetes-related input. Selected program modifications may also prove necessary during the development of reports and compilations required under Task 2.

It is not anticipated that the initial system will include lengthening of data fields to accommodate organization names which exceed present space limitations, as some received from other countries do; this type of change involves most of the program modules in use by the Exchange and would require extensive reprogramming. Where necessary, the test space of the project description will be adapted to accommodate very long names, allowing their accurate representation in catalog efforts and on the project descriptions sent out on custom search retrieval.

Activity 1.1.5 - Index newly obtained input and perform other processing steps.

Input procedures for processing new project summaries are well established at SSIE, and include on-line terminal typing of the full text of each project description and of the supporting administrative information for each project, as well as coding and entry of project location and performing organization components, and complete subject indexing of each task description.

Under present SSIE policies there is no charge made for normal input processing and registration of new research summaries, although clerical support for special procedures designed to expedite

project flow under the NSDDR Program will be required. This support will allow separate identification of NSDDR projects throughout processing flow, and careful attention to individual problem areas.

Subtask 1.2 IMPROVE HIERARCHICAL CLASSIFICATION

Work under this Subtask will permit optimization of scientific categories used for indexing and retrieval, including refinement and extension of hierarchical classification of diabetes research projects, and identification of dissemination categories useful for subject characterization of "affinity groups" (scientists working in the same subject area).

The quality control of subject classifications and of the indexing process is of the utmost importance to the success of the Information Center. Work under this task will concentrate on concept hierarchies essential for practical retrieval under the total support effort, including the several types of output products listed in Task 2.

It is essential to develop the best possible indexing tools, in order to provide highly accurate retrieval of diabetes-related information for research scientists and research administrators, and for management information systems as requested. These hierarchical classifications are required for faithful representation of scientific concepts and sophisticated retrieval of complex interdisciplinary project descriptions coming from many different and heterogeneous sources.

The types of demands placed on the retrieval process in the field of diabetes are such that it is essential to be able to retrieve project descriptions by using both very broad conceptual frameworks and highly specific terminology with equal ease, as well as all types of conceptual groupings falling between these two levels.

Activity 1.2.1 - Identify existing diabetes-related classifications at SSIE.

In accomplishing the above objectives, the structure and usage of existing SSIE classifications related to diabetes research will be examined systematically to identify all subject areas which may serve the needs of the Information Center and all its contributing organizations. This will involve the similar identification of diabetes-related categories and terms used by other organizations including various groups within NIH, the NIH Thesaurus of Health and Medical Sciences developed in the Division of Research Grants,

the NLM Medical Subject Headings and the International Classification of Diseases and Operations. The purpose of this activity is to insure that all conceptual requirements of diabetes research project descriptions and of organizational programs dealing with diabetes are completely and fully represented in the SSIE classification. In this way it will be possible to retrieve information about ongoing research projects from all the different conceptual viewpoints that can be identified from examination of existing indexing systems.

Activity 1.2.2 - Revise and improve existing SSIE categories.

1.2.2a Systematic review and revision will be undertaken of all SSIE indexing categories which have proved necessary for the conceptual characterization of diabetes-related projects. Based on the considerations discussed in Activity 1.2.1, additions and revisions will be proposed by senior staff members.

1.2.2b The revised and modified categories will be tested on sample groups of projects to verify their suitability for classification of diabetes and related research. In some instances, existing characterizations will be subdivided based on sorting out of the projects already contained in them, whereas in other instances entire new groupings will have to be created.

1.2.2c After category revisions are tested in actual use, they will be reviewed with NIH and NSDDR personnel and if judged suitable, adopted for working use in the program. Normal SSIE category change procedures will be followed.

It is understood that classifications once adopted are not restrictive in any sense: the SSIE mechanism for category changes is flexible enough to permit category revisions independently of one another, whenever necessary, or even the use of parallel indexes when this seems advisable to meet retrieval or reporting needs of cooperating organizations.

Activity 1.2.3 - Identify categories likely to be most useful for dissemination to affinity groups, and incorporate them into the classification as special categories.

One of the proposed features of the Current Research Information Center which is expected to prove particularly useful and popular with participants is the regular dissemination of appropriate information to "affinity groups," which are groups of users with shared interest in some problem area relating to diabetes. (a) The SSIE

subject categories will prove useful in the identification of appropriate categories for information dissemination, in their hierarchical context in relation to other subject areas. Lists will be drawn up of the subject topics useful for work with affinity groups, and after appropriate review and adjustment, these topics will be made integral parts of the SSIE classification system and used for subject indexing and retrieval. (b) A statement of scope will be provided for each dissemination category developed by SSIE as a deliverable item. (c) The SSIE file will be utilized to help identify a nucleus of membership in each emergent group, based on research in progress by individuals in the area in question. (d) Records will be kept of numbers of current research projects represented in each affinity group, and larger groups will be subdivided according to more specific research concern as determined by more specific subject searches of the SSIE file. (e) Dissemination categories will be used for Task 2 and 3 activities relating to publication and distribution of products and services.

TASK 2: RETRIEVAL SERVICES: CUSTOM SELECTIVE DISSEMINATION OF INFORMATION; CUSTOM SEARCH SERVICES.

The two most widely used output services of SSIE are (a) the custom searches which are done on demand and (b) the periodic update of information retrieved according to a profile of the user's interests. Arrangements may be made to provide these services, under the contract, to scientists and administrators as designated by NIH.

Subtask 2.1 PROVIDE CUSTOM SEARCH SERVICES AND PUBLICIZE AVAILABILITY OF SUCH SERVICES.

Activity 2.1.1 - Prepare specific subject searches.

The activities of the NSDDR Program and of its Research Information Service will become increasingly well known to its potential users as a result of the activities already described. The volume of request services is expected to rise as a function of elapsed time, after an initial lag period.

Types of user needs expected to be served in this way include the following:

a. To identify present and potential contributions to diabetes research from other disciplines (all of which are already registered at SSIE). These can be viewed as a reservoir of talent available for "unsolved problems."

b. To identify individuals working on a specific diabetes problem, as a type of "referral service."

c. To identify individuals in other laboratories and in other countries who share common interests, and to put them in touch with one another.

d. To supply project descriptions in response to Congressional or public inquiries about research in progress on a given topic.

e. To assist the preparation of critical reviews and of bibliographies, providing leads to individuals and their work.

Activity 2.1.2 - Prepare printouts of input for participating countries and organizations.

As a program aid to each country or special organization that participates by contributing project summaries for their current research support, a yearly computer printout which compiles and presents that country's or organization's complete program, including the full text of each summary, will be provided at no cost to the recipient. This printout will be suitable for use as copy for reproduction or for reference use without further attention.

Activity 2.1.3 - Prepare other lists and tables as needed for management information or other purposes.

SSIE will prepare special listings for management purposes, upon request, such as tables of data and computer printouts listing project titles arranged in geographic sequence or in sequence by supporting agency, as well as a wide variety of other special arrangements:

a. To show patterns of clustering in research:

- The degree of overlap between subject areas.
- The degree of overlap between similar projects.
- The institutional or departmental distribution of research ("All Diabetes Research in Departments of Pathology in Pennsylvania Medical Schools, FY 1973").

b. To assist management information systems as requested in the representation of an agency's support of diabetes research or in providing input to broader surveys of diabetes research support.

Activity 2.1.4 - Help to publicize availability of custom search services.

It will be essential if the information center program is to prove useful to participants that knowledge of its functions and services be disseminated as widely as possible. For this purpose several steps will be taken:

a. The dissemination of reports and compilations prepared under the NSDDR program is partly designed to encourage participation in the registration of new input but will also serve to call attention to the other services available under the program. This dissemination effort will include all investigators working in the immediate area of diabetes, but also organizations that support or perform research on diabetes-related problems, and all information and coordination centers affiliated with the program, including organizations like SSIE in other countries. Cooperative release of research information news in announcements and mailings undertaken by these additional centers will be requested.

b. Special mailings will be made as resources permit to investigators whose research projects indicate an interest in problems relating to or likely to be applicable to the study of diabetes. In this way not only will awareness of the NDDS Program be broadened, but other investigators may be encouraged to focus their research on problems of immediate benefit and value to work in the field of diabetes.

c. Finally, attention will be called to the new programs and services as part of SSIE's normal activities in other contexts, including other mailings, presentations at scientific meetings, and articles or announcements in appropriate journals and newsletters.

Subtask 2.2 PROVIDE SELECTIVE DISSEMINATION SERVICES AND PUBLICIZE AVAILABILITY OF SUCH SERVICES.

The SSIE has available programs for retrieving all summaries of research on a given topic or set of topics which have been registered and indexed during the most recent time period. The frequency with which these are produced and disseminated may be monthly or quarterly depending on the preference of the requester. These compilations may be organized in any of the ways described for the custom searches, and may be used for the same purposes on a continuing basis.

TASK 3: PRODUCE AN ANNUAL COMPENDIUM OF CURRENT DIABETES RESEARCH

SSIE has, over the years, developed the capability of producing catalogs or compendiums of research, using sophisticated computer techniques. These catalogs can be chapterized according to subject matter and may be indexed according to any or all of the following: subject areas in considerable detail, performing organization, investigator's name, supporting organization. The material for these volumes is usually produced on magnetic tape ready for photocomposition, but can be photoreduced and printed directly from computer printouts if delay caused by printing arrangements is longer than desirable. In the performance of Task 3, SSIE will organize the material already registered in the area of diabetes research and the new input which will be generated by Task 1 into appropriate chapters and subchapters as desired by the National Diabetes Data Group and NIH. This material will be carefully edited and the magnetic tape will be produced within three months from an agreed upon cut-off date for the input of new material.

SSIE will assist in making arrangements for printing and in distribution of the final product, the annual Compendium of Current Diabetes Research. If this volume is produced through the Government Printing Office, the printing budget will have to be arranged separately by NIH; however, if printing is arranged through a non-federal mechanism, the cost of the printing can be subsumed within the scope of this Information Center. In this latter eventuality, the printing costs would add approximately $12,000 to the total cost (or reduce the level of other services to be provided by that amount). This approach also would avoid the inherent delay of GPO printing, which is often a matter of several months.

TASK 4: PREPARE QUARTERLY RESEARCH BULLETINS IN SPECIFIC SUBJECT AREAS OF DIABETES RESEARCH.

A total of 7 quarterly Research Bulletins is anticipated, dealing with such areas as treatment and patient care, insulin release and action, related endocrine problems, etiology and genetics, epidemiology and natural history, pathologic correlates, and immunology, with an average volume estimate of 125 projects each.

The number of project descriptions in each bulletin will vary as a function of time during the year (level of input registration and size of current file), and time period covered, and specific definition of subjects covered.

The Research Bulletins will be prepared in single column format according to a standard computer program for their production (Attachment). These printouts will be prepared for photocomposition and printing.

Printing will be arranged by the proposed Information Center under the scope of the contract. It should be noted that prices for printing are subject to periodic increases, and that such price increases will consume a larger proportion of the total resources. For this reason it is particularly important to have a certain amount of flexibility in the budgetary distribution and to include service programs which can be adjusted upward or downward depending on funds available.

TASK 5: EVALUATE EFFECTIVENESS OF REPORTS AND COMPILATIONS.

It is essential to make optimal use of resources available to the National Information Center for Diabetes Research; for this reason, evaluation of the reports and compilations which are generated under the program will be an integral part of the SSIE effort. Staff personnel will prepare a draft evaluation form which will be intended for use by the recipients of custom searches, Research Bulletins,and the annual Compendium in order to elicit assessment of the value and usefulness of these types of output products or services. Of particular concern will be the extent to which users learn of new projects not known to them before and the extent to which they establish contacts with other researchers engaged in similar research. At the same time, suggestions will be obtained from scientist respondents concerning ways of improving the service, alternative formats which may be preferred, and names of new contacts whose research should be represented.

The draft evaluation will be submitted for review and revised as necessary, and the Exchange will provide assistance, in whatever way is appropriate, to the process of obtaining clearance from responsible authorities at the Office of Management and Budget, NIH, and the Smithsonian. After clearance is obtained the form will be routinely included as a part of arrangements made with all who participate in the National Information Center for Diabetes Research.

Upon receipt of the completed questionnaires, decisions will be made concerning follow-up of selected individuals who have raised particular questions, as well as those who have not responded. Results will be tabulated and an analysis will be prepared for review and discussion.

TASK 6: SPECIAL ACTIVITIES AND LIAISON.

In view of the fact that the proposed NSDDR encompasses not only NIH but the CDC and a National Diabetes Data Group, SSIE may be able to perform some very useful liaison among the three groups. It also stands ready to perform any other tasks, suitable to its capabilities, which may be requested by one of the cooperating organizations.

Subtask 6.1 LIAISON ACTIVITIES.

It is projected that a clearinghouse will be developed within CDC which would register diabetes program information. CDC would also be asked to collect, analyze and disseminate data pertinent to diabetes control, and to foster local, regional and state diabetes control programs.

With all of these efforts, SSIE will be of assistance since it can generate printouts of diabetes control programs organized by subject matter or by geographic location. These printouts could be used as input or background data for the CDC Clearinghouse and reports. SSIE could also provide directories in printed form for this information, if desired. The pattern of epidemiologic studies already in progress, as reflected in the files of the research information center, should provide particularly useful input for the CDC clearinghouse operation.

Subtask 6.2 OTHER SPECIAL ACTIVITIES.

SSIE has a staff of individuals with training in many fields of science and in the data processing area, and is quite flexible in the tasks which it can undertake. In the context of other programs of support provided by the Exchange these have included abstracting of clinical treatment protocols, preparing brief summaries of longer documents, special indexing of material of interest to the program, and correlations with the published literature. It is also possible to provide data helpful for the analysis of trends in a given field, or of patterns of research.

The final page of this report illustrates the type of information available through the SSIE system.

D. Financial Data

The following table is a Cost Summary for the proposal. This represents levels of effort as now envisioned. As the program develops it is likely that newly defined priorities will emerge by joint discussion among participating groups, and that particular parts of the program will be more emphasized than others. As this happens, the resources available to the National Information Center for Diabetes Research will be correspondingly redistributed. This will also allow any special activities (Task 6) to be undertaken at the level of effort required. Additionally, there may be costs incurred for data processing of input if there is a need for high priority processing.

Research Bulletins (Task 4) (7 quarterly bulletins, 2000 copies/bulletin)	$56,000-84,000
Compendium of Current Diabetes Research (Task 3) (1 annual directory, 2000 copies)	$18,000-22,000

The remainder of the funds would be distributed as follows:

Task 1 (Input Acquisition and Vocabulary Development)	30%
Task 2 (Retrieval Services)	30%
Task 5 (Evaluation)	10%
Task 6 (Special Activities)	30%

As stated previously these are estimates of levels of effort which are flexible and can be adjusted as needed.

Cost Summary

	Hours	Rate	Dollars
Personnel Costs			
Direct Labor			
Senior Scientist	936	$17.78	$16,642
Staff Scientist	2028	9.61	19,489
Programmer/Analyst	936	9.61	8,995
Technical Assistant	936	6.32	5,916
Editorial/Clerical	3744	4.71	17,634
Total Direct Labor			68,676
Payroll Related Costs at 32.4%			22,251
Total Personnel Costs			90,927
Overhead at 54.0%			49,101
Other Direct Costs			
Direct Computer Usage, 390 hrs. at $47/hr.			18,330
Travel			2,000
Direct Materials			3,000
Direct Services			19,000
Total Other Direct			42,330
Total Costs			182,358
Fee at 9.0%			16,412
Total Cost and Fee			$198,770

Report of the

WORKGROUP ON RESOURCES

to the

NATIONAL COMMISSION ON DIABETES

Co-Chairmen:

Joyce Kortman

Jack Barwind, Ph.D.

This report was prepared as a supplement to and in cooperation with the Committee on Education, the Committee on Treatment, the Workgroup on Socioeconomic and Psychosocial Impact of Diabetes and the Workgroup on Diabetes Research and Training Centers.

I. INTRODUCTION

From the months of hearings, meetings, and reports of the National Commission on Diabetes, the complementarity between diabetes education-and-treatment and biomedical research has emerged as an underlying theme of an integrated effort to combat diabetes. The various Committees and Workgroups have developed recommendations which are a part of their respective reports. The implementation of these recommendations, if approved and adopted, requires a close examination of the availability of federal, state, local, public, and private resources.

The identification of existing resources, as they presently or potentially relate to a national diabetes program, is a necessary prerequisite to a coordinated and coherent attack on diabetes as a major health problem.

The goal of the Resources Workgroup, then, is to assist the Commission by identifying, assessing, and recommending various available resources and by suggesting resource program development. As used in this report, the term resources refers to funds, personnel, material, or expertise in both federal and private sectors that can be utilized as inputs in the campaign against diabetes mellitus.

Because special committees have been involved in the identification of resources within biomedical research areas, the Smithsonian Science Foundation, the Center for Disease Control, the Veterans Administration, and the National Center for Health Statistics, these areas and programs have been largely excluded from this report.

In carrying out its goals, the Resources Workgroup has met with Dr. Theodore Cooper, Assistant Secretary for Health; Dr. Donald Whedon, Director of NIAMDD; Dr. Kenneth Endicott, Administrator of Health Resources Administration; Dr. John Marshall, Associate Administrator of Health Services Administration; Dr. Gene Cohen and Dr. Louis Koplow, representatives of Alcohol, Drug Abuse, and Mental Health Administration, as well as representatives from the National Institute of Education, the Center for Disease Control, the Health Systems Agency, the Extension Service of the United States Department of Agriculture, the Social and Rehabilitation Service, the National Library of Medicine, and the Hypertension Program of the National Heart and Lung Institute. Contacts have also been initiated with representatives from labor and industry.

Because it is necessary to base the work of the Workgroup on the kind and direction of recommendations contained in the Commission report, this report and work is still in a preliminary stage. What follows is a partial listing of governmental agencies with a description of possible areas of significant impact.

II. FEDERAL RESOURCES

A. INTRODUCTION

1. Overview. Federal resources potentially available to a national diabetes treatment and education program span a range of departments and programs. The following section of abstracts presents a sample of this variety of governmental involvement in health programs which are of potential use to any national effort in diabetes and its related diseases.

The listing which follows is not exhaustive; further research will uncover other areas of potential applicability. Yet, this sampling is intended to indicate the opportunities available for a diabetes program.

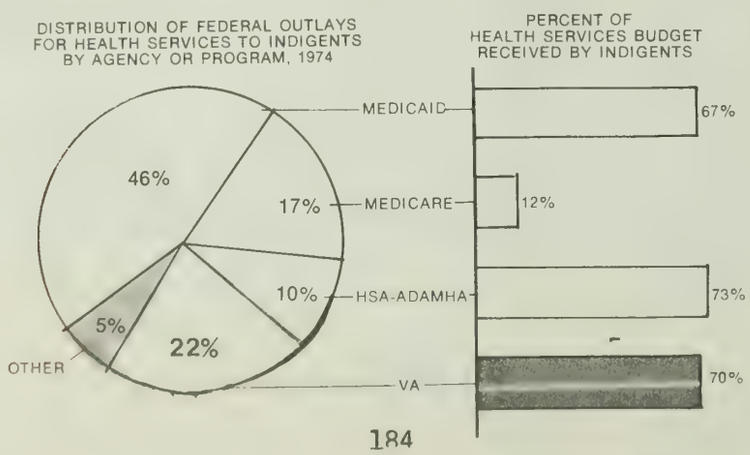
Federal examples in all divisions of The Department of Health, Education, and Welfare, including particularly the National Institutes of Health, in the United States Department of Agriculture, and in related agencies are presented in this summary.

The abstracts include sample projects which have used the funds in a health effort and thus provide an example or prototype for potential application to a diabetes effort. Moreover, an attempt is made to present the breadth of the mandate for the programs and thus to indicate the variety of projects which could be developed.

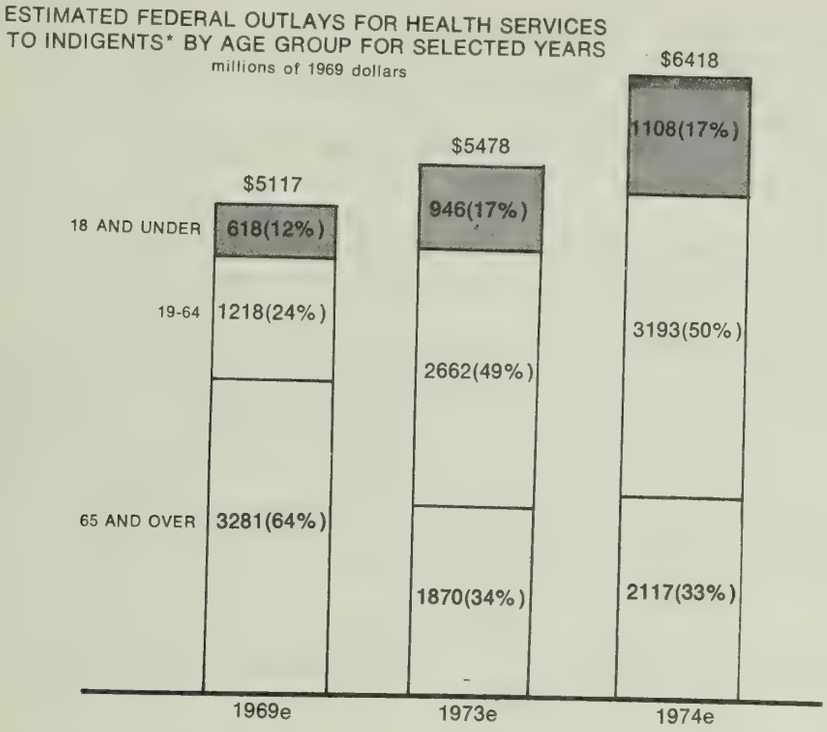
2. Low Income Groups. A major part of our attention in searching out potentially relevant federal funds was the applicability of those funds to low-income, underserved populations.

In the overall U.S. health system, health care services have been the fastest growing division of the federal health care budget. Nevertheless, services to the indigent, as defined by the U. S. Bureau of the Census (i. e., low-income, underserved population) have grown at a slower rate than those health services, declining from 40% of the total in 1969 to 33% in 1974. ** These data and the following two graphs are from the National Planning Association, Chartbook of Federal Spending 1969-74.

An indication of the distribution among agencies of these health dollars can be gained from the following graph:



Recipient categories have also changed in the past five years. Emphasis has shifted from the over-65 group to the 19-64 age group as is indicated by the following graph:



Specifically with regard to linking programs of potential use for a national diabetes initiative to treatment and education for underserved populations, the abstracts contained in this section display the special considerations given low income groups. Over 70% of the federal funding programs abstracted currently give special attention to underserved patients. Mobilizing these resources for diabetes treatment and education would, therefore, also mean that underserved populations receive the emphasis and funds needed for specific sociocultural or economic problems as these relate to diabetes.

3. Abstract Organization. The following abstracts provide detailed information on specific federal programs which represent potential vehicles for diabetes treatment and education programs. The abstracts are organized into sections on:

Health Services Administration/HEW
Health Resources Administration/HEW
Alcohol, Drug Abuse, and Mental Health Administration/HEW
National Institutes of Health
(Department of Agriculture) miscellaneous

Moreover, each abstract is keyed to indicate the program's applicability of specific audiences. Thus resources will be viewed as they potentially impact on:

Patient education and special services
Public education
Continuing medical education for health professionals
Research into educational methods and treatment delivery systems

These functional educational areas will be in addition to the examination of resources in the patient treatment area.

The rationale for such a functional subdivision of treatment and education revolves around a desire to identify specific kinds of resources for specific target groups. The educational materials and resources needed for an indigent, Spanish-speaking diabetic patient, for example, will be radically different, and perhaps less available, than those appropriate for upper-middle class education or for the education of the public in general. Moreover, different agencies and organizations will possess resources which could be directed at the differing groups.

Thus, it is mandatory that the target groups for education and treatment programs be identified to provide basis for an organizational structure for reviewing resource availability.

A summary matrix is provided at the end of the abstracts section in order to display the general audience trends in the federal programs.

B. ABSTRACTS

1. HEALTH SERVICES ADMINISTRATION:

Mission:

The Health Services Administration provides a national focus for programs and health services for all people of the United States with emphasis on achieving the integration of service delivery and public and private financing systems to assure their responsiveness to the needs of individuals and families in all levels of society.

To these ends, the Health Services Administration:

(1) Administers health service delivery programs supported by project grants, contracts or other arrangement.

(2) Provides leadership to and supports efforts designed to integrate health service delivery programs with public and private health financing programs.

(3) Administers formula grant-supported health services programs.

(4) Assures quality and contains costs of service provided through the public financing programs.

(5) Provides, or arranges for special services, including both hospital and outpatient care, to designated beneficiaries; and

(6) Provides advice and support to the Assistant Secretary for Health IN THE FORMULATION OF HEALTH POLICIES.

(Vol. 39, Fed. Reg., 10462, 3/20/74)

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a. BUREAU OF QUALITY ASSURANCE:

Mission:

Provides national leadership and direction to efforts to assure that health care services provided under the Medicare, Medicaid, and other Federal programs are medically necessary and furnished in the past economical manner consistent with recognized professional standards of care, and serves as the national focus for assuring accountability to health care consumers for the quality of health care services.

To this end, the Bureau:

(1) In coordination with the Social Security Administration (SSA), the Social and Rehabilitation Service (SRS), and components of the Public Health Service (PHS):

(a) develops quality assurance standards and appropriate health policies, coordinates their implementation among the health programs for which the Federal government has responsibility, and evaluates their impact on the utilization, quality, and cost of health care services;

(b) develops conditions and standards of participation for providers and suppliers of health services under the Medicare and Medicaid programs, including health and safety standards, and coordinates their application, monitoring, and appraisal;

(c) develops, interprets, and implements policies for professional standards review and related peer review and utilization review programs under Medicare and Medicaid including responsibility for entering into agreements with Professional Standards Review Organizations (PSROs) and Professional Standards Review (PSR) State Councils;

(d) develops, interprets, and evaluates health care and health-related policies with respect to the implementation of the End-Stage Renal Disease provision of the Social Security Act, and coordinates with Medicare the implementation and monitoring of these policies;

(e) develops and implements principles of reimbursement for PSROs, PSR State Councils, and develops policies with respect to the operational aspects of peer and utilization review programs including their monitoring, and evaluation;

(2) Identifies issues for Office of the General Counsel (OGC) analysis on such legal and technical aspects as peer review, utilization review and health standards policies;

(3) Determines information and data reporting, collection, and systems requirements for PSRO, and coordinates their implementation with SSA, SRS, and the Health Resources Administration (HRA);

(4) In cooperation with SSA and HRA, determines information requirements and develops systems to implement such requirements to assure the quality of services provided under the End-Stage Renal Disease Program;

(5) Coordinates activities of other agencies involved in the

monitoring and appraisal of peer review and health-related Federal programs to determine the impact on quality, utilization, access, and cost of care;

(6) In collaboration with HRA undertakes demonstration and research projects to develop improved methods and techniques for conducting peer review and assuring quality of care;

(7) Conducts ongoing programs of informational and technical advice and assistance to peer review organizations and the medical community generally;

(8) Provides programmatic and technical direction to the PHS Regional Office staffs responsible for peer review and health standards programs; and

(9) Provides analytic and technical support to the National Professional Standards Review Council.

(Vol. 39, Fed. Reg., 10463, 3/20/74)

1) PROFESSIONAL STANDARDS REVIEW ORGANIZATION

Federal Program Abstract

KEY

major treat/ed areas — cont. med. ed. treatment

DEPARTMENT AFFILIATION:

HEW

ENABLING LEGISLATION:

Public Law 92-603 (86 Statute 1329)

MANDATE:

To determine the appropriateness and the quality of medical care received by all Medicare and Medicaid patients in short-stay hospitals.

KEY RESPONSIBILITIES:

The development of criteria and standards for quality assurance, the performance of medical care evaluation studies, and the development of programs in continuing medical education through local support careers.

RESOURCE POTENTIAL:

Professional education for physicians and other health professionals utilizing Professional Standards Review Organizations:

In October 1972 the President signed Public Law 92-603 which established Professional Standards Review Organization (PSRO). These organizations are formed by physicians to determine the appropriateness and the quality of medical care received by all Medicare and Medicaid patients in short stay hospitals in this country. Under this legislation every area of the United States is a part of a PSRO network and therefore the care of every Medicare and Medicaid patient and all physicians treating these patients will be subject to PSRO review.

It is now anticipated that PSRO will become the dominant quality assurance mechanism in the United States. Therefore, it is worthwhile to examine ways in which information gained about specific diseases can utilize this mechanism to educate not only physicians

but all health professionals involved in direct patient care.

The National Commission on Diabetes has recommended the investment of substantial resources in activities related to expanding medical knowledge under the direction of the major health agencies, particularly the National Institutes of Health. It is therefore important that the expanding and relatively new area of quality assurance as sponsored by the Federal government not operate in isolation from these areas of medical research and evaluation. The findings and outcomes of many of the latter's programs are potentially of great importance to those individuals who have responsibility for assessing and assuring the quality of medical care.

At least three PSRO activities are immediately available to be utilized by the National Commission on Diabetes to reach all health care professionals. These include, the development of criteria and standards, the performance of medical care evaluation studies, and the development of programs in continuing medical education.

Every PSRO is required to develop specific criteria for care of each disease in order to insure that all patients receive the highest quality of care available. This law also requires the PSRO's to perform medical care evaluation studies and to have active programs in continuing medical education for both physicians and non-physician health care practitioners.

The National Commission on Diabetes could utilize these already existing, funded organizations to improve the care of diabetic patients. Organizations and individuals concerned with the care of diabetic patients could be encouraged to develop criteria for diabetic care or to aid in modifying the new existing criteria in use by PSRO's to insure these criteria are the best available.

Medical Care Evaluation Studies could be utilized to identity specific areas of deficiency in diabetic care as well as areas in need of further basic science or clinical investigation. These MCE's could then be utilized by the hospitals or Federal health agencies in establishing their investigative priorities. This mechanism could serve as a two-way information flow system from Federal health research agencies to local PSRO's and from the PSRO to the involved agencies. This would facilitate the activities of each and would also be useful in improving the quality of diabetic medical care. This exchange of relevant information would be facilitated by a working relationship between the PSRO and other agencies interested in this problem.

Continuing Medical Education is a mandate of each PSRO. They are responsible not only for physician education programs but also education programs of the allied health professionals such as nurses, dentists, social workers, podiatrists, etc. Educational programs related to diabetes are appropriate and easily implemented in this existing system.

Since the PSRO program is relatively new, this mechanism has only been utilized on one previous occasion. On December 16, 1974, a presentation was made to the National Professional Standards Review Council by the National High Blood Pressure Education Program (NHBPEP) of the National Institutes of Health (NIH). This concerned the role of PSRO's in improving the quality of care for hypertension. Following that presentation the NPSRC voted unanimously to "endorse the dissemination of this information to all the elements of the PSRO (program)... for their consideration....(and) commended it to them for their urgent consideration as one model (of high quality standards)."

An even stronger case can be developed for diabetes. Each PSRO could be asked to consider diabetes as a potential subject for MCE studies during the early stages of PSRO operation.

Diabetes constitutes one of this nation's largest health problems particularly among the elderly (Medicare) and the undeserved (Medicaid). PSRO's could be assisted in developing diabetes criteria, programs to improve diabetes care and to establish studies to pinpoint current deficiencies in diabetic management and treatment.

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2) PROVIDER STANDARDS AND CERTIFICATION

Federal Program Abstract

KEY

major treat/ed areas — cont. med. ed.
treatment
patient/public ed.

DEPARTMENT AFFILIATION:

HEW/Bureau of Quality Assurance

MANDATE:

To support programmatic functions in the area of provider quality and to evaluate the effectiveness of Bureau efforts to assure quality of care.

KEY RESPONSIBILITIES:

To evaluate surveyor training thereby reinforcing the ability to conduct high quality training for state surveyor personnel at all levels of provider certification; to conduct proficiency examinations for cytotechnocologists, physical therapists and psychiatric technicians and to conduct diversified and exploratory methods of evaluating compliance.

RESOURCE POTENTIAL:

An example of the role to by played in diabetes treatment and education by the Division of Provider Standards and Certification lies in the area of national public involvement. The Division has been charged to organize local and national symposium to improve the quality assurance of health care through public and patient involvement. These Symposiums could be tapped to provide discussion of the quality of care in treatment and education regarding diabetes and related diseases.

b. BUREAU OF COMMUNITY HEALTH SERVICES

Mission:

The Bureau of Community Health Services serves as a national focus for efforts to improve the organization and delivery of health services in the context of the major health care financing programs.

To this end, the Bureau:

(1) facilitates the development of locally-based programs of health services delivery;

(2) initiates activities which provide alternate methods of health service delivery and health maintenance;

(3) enchances the capacity of existing health service programs for full participation in the major public health financing systems-Medicare and Medicaid;

(4) administers programs providing specific services to specific populations including family planning, maternal and child health care, and migrant care;

(5) directs programs, including the National Health Service Corps, which assure accessibility to health care in under-served areas; and

(6) improves quality and contains costs of services provided in grant-initiated health service delivery programs.

(Vol. 39, Fed. Reg., 10463, 3/20/74)

1) MATERNAL AND CHILD HEALTH

Federal Program Abstract

KEY

major treat/ed areas
research in ed patient ed. (low income)
treatment public ed.
professional training

DEPARTMENT AFFILIATION:

HEW/HSA

ENABLING LEGISLATION:

Social Security Act, as amended (Title V)

MANDATE:

Grants for research with special emphasis on need for and feasibility of use of health personnel with various degrees of training; and training professional personnel to improve health services to mothers and children.

KEY RESPONSIBILITIES:

To train professionals for all aspects of maternal and child health care delivery including children's school health examinations and screening programs; special attention is reserved for mothers and children in isolated rural areas and central cities.

BUDGET DATA:

FY 1972 - $59,250,000
FY 1973 - $60,778,000

RESOURCE POTENTIAL:

The emphasis in this program on training personnel and providing screening and education services; provides an obvious vehicle for diabetes treatment and education projects.

2) NATIONAL HEALTH SERVICE CORPS

Federal Program Abstract

KEY

major treat/ed areas — profes ional ed. / treatment patient ed. (low income)

DEPARTMENT AFFILIATION:

HEW (HSA)

ENABLING LEGISLATION:

Emergency Health Personnel Act of 1970

MANDATE:

Recruit and place physicians and other health professionals in areas that have a critical shortage of health manpower.

KEY RESPONSIBILITIES:

To improve post-treatment care in a range of diseases and to provide health professionals with opportunities to work in disadvantaged and underserved communities.

BUDGET DATA:

Appropriation FY 73 $ 7 million
FY 74 $11 million

RESOURCE POTENTIAL:

National Health Service Corp programs not only provide personnel for inpatient care, but also for health education. The NHSC effort in South Dakota is a case in point. Here the program nurses also taught health education classes at the local high school and provided adult education classes to the Indian reservation.

Moreover, the NHSC contract allows professionals to be reimbursed for 1/2 day per week of approved educational activities for their own continuing medical education.

Both aspects of the program provide ample resources which could be tapped by a national diabetes treatment and education effort.

3) MIGRANT HEALTH PROGRAMS

Federal Program Abstract

KEY

major treat/ed areas — patient (low income) treatment

DEPARTMENT AFFILIATION:

HEW/HSA

ENABLING LEGISLATION:

Public Laws 87-692, 89-109, 90-574, 910209

MANDATE:

To provide family health services for domestic agricultural migratory workers to improve the health condition of such workers and their families.

KEY RESPONSIBILITIES:

The health services provided can be categorized as (1) full-time comprehensive health services; (2) scheduled comprehensive health services through intermittently scheduled clinics; (3) scheduled medical services; (4) scheduled categorical health services (e. g., Tuberculosis Control); (5) referral services; (6) environmental health; (7) administrative consultative services.

BUDGET DATA:

1973 - $23,700,000

RESOURCE POTENTIAL:

As the service areas under Key Responsibilities indicate, ample opportunity exists for diabetes treatment and education programs using the Migrant Health framework. For instance, clinics can be funded for specific diseases without offering a broad range of health care. A clinic for diabetes screening, treatment and education could be provided by such a grant.

c. BUREAU OF MEDICAL SERVICES

Mission:

The Bureau of Medical Services provides direct health care and support for such services to certain legal beneficiaries of the Public Health Service, including meeting the occupational health needs of Federal employees, and provides national leadership to assist and encourage the development of comprehensive area emergency medical services systems.

To this end the Bureau provides:

(1) Comprehensive direct health care for designated Federal beneficiaries and selected community groups.

(2) Occupational health care and safety services for Federal employees.

(3) Training for health services personnel.

(4) The conduct of intramural clinical and health services research.

(5) National leadership for assistance and guidance in the development, improvement, expansion, and integration of comprehensive area emergency medical services systems.

(Vol. 39, Fed. Reg., 10463, 3/20/74)

d. INDIAN HEALTH SERVICE

Mission:

The Indian Health Service (IHS) assures a comprehensive health services delivery system for American Indians and Alaska Natives with sufficient options to provide for maximum tribal involvement in meeting their health needs. The goal for the Indian Health Service is to raise the health level of the Indian and Alaska Native people to the highest possible level.

To carry out its mission and to attain its goal, the Indian Health Service:

(1) Assists Indian tribes in developing their capacity to man and manage their health programs through activities including health and management training, technical assistance and human resource development.

(2) Facilitates and assists Indian tribes in coordinating health planning, in obtaining and utilizing health resources available through Federal, State, and local programs, in operation of comprehensive health programs, and in health program evaluation.

(3) Provides comprehensive health care service, including hospital and ambulatory medical care, preventive and rehabilitative services and development of community sanitation facilities.

(4) Serves as the principal Federal advocate for Indians in the health field to assure comprehensive health services for American Indians and Alaska Natives.

(Vol 39, Fed. Reg., 10463, 3/20/74)

2) SOCIAL AND REHABILITATION SERVICES

Federal Program Abstract

KEY

major treat/ed areas — treatment
patient (low income)

DEPARTMENT AFFILIATION:

HEW

ENABLING LEGISLATION:

1974 Social Security Act Amendments (Title XX)

MANDATE:

To provide a broad range of social services to the underserved and underprivileged population.

KEY RESPONSIBILITIES:

Grants under Social Services are to be used for such activities as nutrition and dietary education programs, children's health care support, vocational rehabilitation, and development disabilities.

RESOURCE POTENTIAL:

The Social Rehabilitation Services programs lend themselves in a

variety of ways to diabetes applications. Methods include:

(1) Promoting or developing legislation to permit the direct reimbursement of paraprofessionals for defined roles in education (e.g., diet) of Medicare and Medicaid beneficiaries.

(2) Funding special diabetes project grants under Crippled Children's Programs, Developmental Disabilities (PL 91-517) and Vocational Rehabilitation (PL 93-112).

(3) Encouraging state plans to provide nutrition and dietary services to low income diabetics.

(4) Providing specialized services for the juvenile diabetic.

(5) Through revenue sharing, providing direct rehabiliation services.

The use of resources in this manner is exemplified by the following three sample projects from Michigan, North Carolina and Florida:

MICHIGAN PROJECT

I. WHAT SERVICES ARE AVAILABLE

1. Medical and physical evaluation
2. Vocational guidance and counseling
3. Physical restoration and corrective surgery
4. Artificial limbs, hearing aids, braces and other appliances
5. Training for a job
6. Maintenance and transportation
7. Tools, equipment, licenses or initial stock and supplies
8. Job placement and follow-up

II. WHO IS ELIGIBLE:

To be eligible you need to be a resident of Michigan who is of employable age and who has (a) a disability, (b) a substantial handicap to employment, and (c) there is a reasonable expectation that services will result in the person becoming gainfully employed.

III. HERE ARE SOME TYPICAL TYPES OF DISABILITIES WE WORK WITH:

1. Visually handicapped
2. Deaf and hard of hearing

3. Epilepsy
4. Dental disabilities
5. Orthopedic impairment
6. Psychiatric disabilities
7. Heart disease
8. Mental retardation
9. DIABETES

IV. EMPLOYERS RECEIVE SERVICES AS:

1. Troubled employee assistance
2. Workman's compensation
3. Second injury certification
4. Affirmative action assistance
5. Tailored training
6. Screened applicants
7. Treatment of handicapped bias
8. Follow-up and support service

("Doctor's Cover," Michigan Diabetes News, August 1975, p.3.)

NORTH CAROLINA PROJECT

TITLE XX FUNDS AS A RESOURCE FOR FUNDING A STATEWIDE NUTRITION PROGRAM.

Funding

Title XX Funds may be used by a state to fund 75% of its nutrition program offered to Title XX eligible clients.

a) See Title XX eligibility guidelines.

b) State or local county can provide the 25%.

c) State Department of Social Services coordinates all Title XX Funds.

Role

The role of the Diabetes Association.

a) Discuss the need of nutrition consultants at the Health Department level as affects the diabetic population (25% of population is eligible for services from the Health Department).

b) If they are not aware of the availability of Title XX

Funds, arrange a meeting with the Title XX coordinator of Department of Social Services.

c) Assist in the development of a basic and continuing education program relating to diabetics.

d) Approach the Area Health Education Centers, where they exist, and enlist their support of the education programs for the nutritionists.

(John A. Laurents, Executive Director, American Diabetes Association, North Carolina Affiliate, Inc.)

FLORIDA PROJECT

NUTRITION

HISTORICAL NOTES:

1914 - Initiation of Florida's first nutrition program - an educational program to combat pellegra - begun by Dr. J. Y. Porter, Florida's first State Health Officer....
1941 - Employment of first nutritionist at the state level, working on anemia ....
1942 - and malnutition among Florida's children ....
1946 - Establishment of the Department of Nutritional Investigations and Services ....
1950 - Reorganization as Division of Nutrition and Diabetes Control, adding screening programs for diabetes ....
1957 - Establishment of first nutritionist position in a county health department ....
1958 - Establishment of the Division of Nutrition as a unit of the Bureau of Local Health Services ....
1968 - Renamed Nutrition Section as a unit of Bureau of Local Health Services ....
1972 - Assignment of Institution Nutritionist Coordinator with responsibility for consultation to state institutions of other Divisions of Department of Health and Rehabilitative Services ....
1972 - Nutrition Section administratively placed under Administration.

PHILOSOPHY:

Nutrition is now universally recognized as a vital environmental factor affecting human mental and physical development and health. Both deprivation in diets and dietary excesses are closely associated with numerous clinical disease entities. Studies identify iron deficiency anemia and obesity as significant public health problems. Diet is increasingly used in treatment and control of metabolic errors

and prevention of cardiovascular disease, as well as nutritional deficiency. Public interest in nutrition and diet is evidenced by mass responses to commercial advertising and promotion of dietary fads and crash diets. Authoritative guidance in food selection, both in health and disease, is an essential component of public health services directed toward health maintenance, health protection and disease control. Population groups most in need of nutrition services include: pregnant women, infants, children through adolescence, aged persons, persons with chronic diseases requiring specific therapeutic diets, disadvantaged families with low incomes and limited education and persons in group or health care facilities. Rapid growth of population in Florida requires increased nutrition staffing through county health units to provide nutrition surveillance and continuing nutrition education and diet counseling services.

LEGAL:

Section 381.031 - General Public Health Law
Section 10-29.15 - Nursing Homes and Related Facilities Licensure - Dietary Services

OBJECTIVES:

1. To promote understanding of the role of nutrition in health maintenance, health protection, disease prevention and control by providing authoritative information on diet and nutrition to the public, public health personnel, personnel of related community agencies, educators and school personnel, food service workers in group care facilities.

2. To identify nutrition-related health problems existing at the local level.

3. To provide nutrition consultative services and nutrition education services to guide in the development of good food selection habits essential for health maintenance and disease control.

4. To participate in basic and continuing education of public health professionals, dietitians, educators and para-professional health personnel who can disseminate and apply nutrition information.

5. To participate in developing standards and provide consultation services to group care and day care facilities to upgrade the nutritional quality and food palatability while improving the efficiency and sanitation of food services.

6. To coordinate public health nutritional services with related programs of other Divisions of the Department of Health and Rehabilitative Services and other community groups.

7. To participate in planning, developing and evaluating new food and nutrition services in the community.

PROGRAMMING:

County nutrition services should be developed around the current public health programs and identified health problems in the community. The kind and extent of nutrition services provided at the local level should include a realistic program, in line with the capabilities of county staff, and should include periodic review and evaluation. The nutritionist should plan programs cooperatively with the county health director, the nursing director and with representatives of involved community agencies and institutions. Suggested nutrition services related to ongoing public health programs include:

I. Maternal Health and Family Planning:

A. Maternity Services:

Prenatal diet counseling for normal nutritional needs and therapeutic diet modifications.
Nutrition education in programs for pregnant school girls.

B. Family Planning

Inter-conceptual nutrition guidance for health maintenance, weight control, and any necessary diet modification related to oral contraceptive agents. Advice on general family food selection, meal planning, food buying and food budgeting.

II. Child Health Services:

Counseling on nutrition, feeding, and food habits for infants and preschool children.
Nutrition education as part of routine screening in child health clinics. Diet counseling for children who are malnourished (iron deficiency anemia, growth problems,) or require diet therapy for inborn errors of metabolism, diabetes, allergies, cystic fibrosis, heart disease, kidney conditions, weight problems, or other chronic or handicapping conditions.
Nutrition education in school health programs with nutrition consultation and in-service education for teachers and school food service workers.
Nutritional consultation to facilities providing child care or day care.

III. Adult Health and Chronic Diseases:

A. Health Maintenance:

Information on meeting normal nutritional needs as a component of health education to the public.
Weight control and weight reduction for adults.
Programs to combat unsound dietary programs and food fads.
Nutrition counseling, meal planning and food buying guidance.

B. Diabetes:

Individual and group diet counseling for diabetics with physician-prescribed diets.
Participation in community programs and programs of lay diabetes groups.

C. Cardiovascular Disease:

Nutrition education on calorie and lipid control for prevention of heart disease as part of cardiovascular screening programs. Diet counseling on calorie control, fat control, or sodium restricted diets prescribed by physicians.

D. Other Chronic Diseases:

Diet counseling for conditions requiring dietary modifications such as kidney disease, gastro-intestinal disorders, allergies, etc.

E. Aging:

Nutrition education for senior citizen groups. Consultation on home delivered and congregate meal programs.

F. Home Health Services:

Diet counseling for patients regarding normal or therapeutic diets.
Consultative services to physicians, nurses, therapists and social workers.
Training and consultative services on nutrition and food management to Home Health Aides.

IV. Health Facilities:

Evaluation of food and nutrition services of hospitals and nursing homes to meet standards of state and federal programs (i.e., licensure, Medicare, Medicaid).
Recruitment and guidance of consulting dietitians.

Consultative advice on food service for administrators and food service personnel of hospitals, skilled nursing homes and other health care facilities.
Assistance with formal and informal educational programs on food service in vocational schools, community colleges and in the community.
Assistance in planning for new or renovated facilities and equipment in food service facilities.

V. Research:

Planning for special studies regarding nutritional status and/or dietary aspects of public health problems.

VI. Health Education:

Selection, preparation and guidance in use of nutrition teaching materials and audio-visual aids.
Participation in community projects, programs and committees.
Services to any other project, program, group or agency as requested or needed.
Programs or information on nutrition and diet to local newspapers, radio or television stations.

VII. Other:

Nutrition consultation and in-service education to staff of other Divisions of the Department of Health and Rehabilitative Services and diet counseling for their clients, e.g., assistance on family nutrition and food management for clients from Division of Family Services; diet counseling to clients from Division of Vocational Rehabilitation (including crippled children) and guidance on food service management to Departmental institutions including halfway houses, jails, road camps and detention centers.

ASSISTANCE AVAILABLE TO COUNTIES:

Every effort should be made to assure that nutrition services provided to the public are both authoritative and realistic. To assist in meeting these goals, the Nutrition Section offers the following services:

I. Consultation:

Consultation of nutritionists is available to professional staff to plan services, discuss specific problems and provide technical assistance.

II. Inservice Education:

Nutrition Section staff conduct nutrition education programs for professional and para-professional workers.

III. Group Classes and Demonstrations:

Classes and/or demonstrations can be conducted in clinics or other facilities in local communities for patients or for the general public.

IV. Diet Counseling:

Counseling on regular or therapeutic diets for individuals referred by public health personnel or private physicians.

V. Program Evaluation:

Evaluation can be made of either the total nutrition program or a specific phase of the program being conducted at the county level.

VI. Technical Guidance:

Technical guidance is provided to nutritionists employed by the county health unit and for resident nutritionists assigned to county health departments.

VII. Institutional Facilities:

Evaluation of meal planning, food service and nutritional services of various institutional facilities can be made in conjunction with licensure or certification, or in the interest of improving the over-all nutrition program in these facilities.

VIII. Assignment of Personnel by the Section:

A. For those county health units without a nutritionist on the staff, services are provided by the regional nutrition consultant assigned to cover assigned geographical areas of the state.

B. For counties in which there is a reasonable intent that a nutritionist will be added to the staff within one or two years, a limited number of nutrition resident positions are assigned by the Section to develop a program of nutrition services which can be immediately taken over by the county's staff nutritionist when employed.

C. Funds for employment of nutrition personnel may be available through several sources:

Project grants under MIC Projects, Children and Youth Projects, under Comprehensive Planning grants, from the Bureau on Aging, Home Health Services, Elementary and Secondary Education Act, etc.

IX. Educational Materials:

A. Leaflets, pamphlets, booklets and other materials on nutrition may be obtained from the Health Education Section; slides, film-strips, and films from the Audio-Visual Library of the Division of Health; reference books from the Library. Materials and references on special areas of nutrition, nutrition programming and therapeutic diets are on file in the Nutrition Section.

B. Additional materials on various aspects of nutrition may be obtained from the Department of Health, Education and Welfare, the state and federal Departments of Agriculture and other educational organizations.

X. Related Services:

The Division of Family Services through its offices in each county, operates the food stamp program for needy families. Nutritionists can assist county health department staff to refer eligible families and provide nutrition education.

MINIMAL ACCEPTABLE PROGRAM:

1. Inclusion of nutrition service and nutrition counseling as a part of all pertinent nursing services.

2. Regular periodic consultation by staff members with county or regional nutritionist, with discussion of case problems, in-service training and program planning.

3. An up-to-date evaluation of the status of nutritional care and nutrition problems on the local scene, with evidence of efforts to improve conditions as indicated.

4. Regular periodic sampling of population groups, to determine the basic levels of nutrition knowledge and to uncover latent or developing areas of malnutrition.

5. Referrals of families using various health department services to the available community food and nutrition programs.

CRITERIA FOR EVALUATION:

1. A periodic review of the number and nature of requests for nutrition assistance and the utilization by health department staff members of suggested nutrition programs.

2. Statistical sampling of records covering various types of services rendered by health department personnel to see if nutrition is being stressed in the over-all care and treatment of patients in various categories.

3. A periodic assessment of the degree of improvement noted in the nutritive quality of food intake and nutritional status of those receiving nutrition services - by direct observation when possible or by record review, surveys, questionnaires, etc.

4. Nutrition surveillance through periodic data collection from health department and/or hospitals records (pertinent laboratory test results and clinical observations) indicative of significant changes in the nutritional status among recipients of health services.

5. Random sampling on a periodic basis of nutritional status and/or dietary patterns in a given county or area of a county.

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a. CRIPPLED CHILDREN SERVICES

Federal Program Abstract

KEY

major treat/ed areas patient ed.
treatment

DEPARTMENT AFFILIATION:

HEW

ENABLING LEGISLATION:

Social Security Act of 1935, as amended

MANDATE:

Provide services for location, treatment, and follow-up care for crippled children on those whose conditions will lead to crippling.

KEY RESPONSIBILITIES:

In all areas related to childhood crippling, to provide diagnostic services, family financial planning education, mental health support, continuing professional education and disease treatment.

BUDGET DATA:

FY 1972 - $62,272,000
FY 1973 - 64,900,000

RESOURCE POTENTIAL:

The opportunities represented by these funds are exemplified by the following projects initiated in Florida:

SUMMER CAMP AS AN EDUCATIONAL MILIEU FOR CHILDREN AND YOUTH WITH DIABETES

Arlan L. Rosenbloom, M.D.

INTRODUCTION

The model to be described has evolved over the past seven years as a nidus of the effort to improve the quality of care for children and youth with diabetes in the State of Florida. The unique opportunities provided by the camp setting have dispelled an inherent distaste for segregating youngsters with diabetes and potentially reinforcing their sense of abnormality. We have been influenced by our own and our trainees continued excitement, by the physicians who send their patients to camp, by parents and, mostly, by the youngsters themselves, who tell us that camp permits them to mature in their understanding and technical skills. With others who have similar problems they are able to work through their self-pity, depression, anger, and guilt.

Novel opportunities provided by the camp setting include:

The ability to teach youngsters about their diabetes in a friendly, non-stressful milieu and to monitor their behavior with minimal blame and castigation.

The participation in an unmodified physical program supporting the teaching that a complete life is open to individuals with diabetes and stressing the importance of exercise.

The education of children away from the overdependency and manipulation common in families with childhood diabetes.

The teaching of parents, in special parents' day programs, to better understand diabetes, the real needs of their children and the potentially destructive behavior families can develop.

The occasions for "rapping" with experts and each other to express feelings of isolation and despondence and dispel popular myths about diabetes and the peope who have it.

The prolonged observation by and involvement with medical staff permitting the unraveling of management and associated emotional problems resistant to solution in the artificial environments of clinic and hospital.

Immersion of physicians, nurses, dietitians, and others in a committed helping environment where learning is intense and exciting, where rigid health care roles are obliterated while personal skills and understanding are emphasized.

Aggregation of large numbers of youngsters with diabetes for studies relating to treatment, attitudes and other clinical aspects in natural circumstances.

(The above project was supported by NIH Grant 2M01RR0082-13 and the Division of Children's Medical Services of the State of Florida Department of Health and Rehabilitative Services.)

COPY OF AGREEMENT

This agreement entered into this 24th day of June, 1975, between the Division of Children's Medical Services, Department of Health and Rehabilitative Services, State of Florida, represented by the officer executing this contract and hereinafter styled "DCMS", and the Division of Genetics, Endocrinology and Metabolism, Department of Pediatrics, University of Florida, Gainesville, Florida, on behalf of the Regional Program for Children with Diabetes represented by the officer executing this contract and hereinafter styled "Program."

WITNESSETH THAT:

WHEREAS, DCMS, now periodically called upon to pay for expenses involved in various clinic visits, laboratory tests, hospitalizations, medications, equipment, professional fees, etc., on behalf of individuals with diabetes wishes to utilize its funds more efficiently and effectively, and

WHEREAS, DCMS, needs patients and cost benefit data, plus continuous medical supervision of children with diabetes as will be available through the Program, and

WHEREAS, the Program is designed to provide specialized services for the education of children with diabetes, and

WHEREAS, DCMS, wishes to upgrade the quality of diabetes care for children and youth with diabetes throughout the State of Florida,

NOW THEREFORE, the parties agree to fulfill the following obligations:

I. The Program will continue to:

A. Hold clinics to serve DCMS in the following regions:

1. II-A - Tallahassee - 6 per year.
2. III - Gainesville - 48 per year.
3. IV - Jacksonville - to be determined.
4. V - Ocala - 6 per year.
5. VI - Orlando - 6 per year.
6. VI-B - Daytona Beach - 3 per year.

B. Provide diabetes camp experience for DCMS patients in the program regions. Camp fees to be included in budget.

C. Coordinate clinics through the Nurse Specialist with the overall supervision of the Nursing Director, Division of Children's Medical Services, as well as the supervision of the Local Medical Director, or his designee, and the Nursing Director of the Service Delivery Area.

D. As clinic population increases, schedule the regional clinics to meet the demands up to a maximum of one clinic per month upon approval of the Local Medical Director, and the DCMS Director of Nursing Services.

E. Each patient will be seen at least once a year with frequent telephone contact to monitor control criteria.

F. The following types of patients will be seen in the clinics:

1. DCMS sponsored patients with diabetes (children and youth.)
2. Private patients with diabetes when referred by their private physician for consultation.
3. Children with diabetes who have been referred to DCMS to be screened for their eligibility for DCMS sponsorship.

G. Provide the following personnel to attend the clinics along with DCMS nursing personnel and a DCMS approval local pediatrician consultant designated with the Local Medical Director.

1. Nurse Specialist who spends her full time working with children and youth with diabetes.

   a. Nurse Specialist will be based at Shands Teaching Hospital at the University of Florida in Gainesville.
   b. She will serve as key patient health educator in the clinics. Service will be available on a 24 hour-a-day call service to patients and to DCMS personnel for any problems which may arise in the management of any individual diabetes patient.
   c. She will be involved in the education of DCMS nursing personnel in care of children with diabetes.

2. The pediatrician will be from the Department of Pediatrics, University of Florida College of Medicine.

H. Refer any additional laboratory, radiology or other studies to either the private physician or DCMS.

I. Maintain all patient records in the Program Office of the Nurse Specialist.

J. Assure that the Nurse Specialist will be responsible for transmitting copies of all regular reports (clinic dictation, pertinent correspondence with other agencies, etc.) on all professional contacts with patients to appropriate local DCMS offices, local physicians and other appropriate parties.

K. Assure that regional diabetes patients records are kept updated and open to DCMS audit.

L. Assure that the following reports are submitted:

1. Quarterly report to include the following:

a. Number of professional staff attending clinics.
b. Total number of patients seen; number of DCMS sponsored patients seen.
c. Total expenditures, University of Florida.
d. Tally sheet of all phone contacts with the patients.

Reports will be submitted in September, December, March and June gained from records submitted to DCMS, which show improved care to the diabetes children as evidenced by change in school attendance, hospitalization, and patient professional contact.

II. The DCMS will:

A. Pay the Program the total sum of $35,200. The camper and consultation fees will be paid in a lump sum at or near the conclusion of camp. Thereafter, the remainder of $25,200 will be paid at the end of the quarter in which services were provided. Quarterly reports must be received before payment will be made.

B. Provide the Program with records of any contacts made by District DCMS personnel with diabetes patients.

C. Local DCMS delivery offices will assume the professional fees for DCMS approved pediatrician from that area who will jointly attend the clinics. Local service area also pays patient associated expenses (syringes, urine testing supplies, etc.)

III. This Agreement shall be in effect for the period July 1, 1975, through June 30, 1976, unless cancelled in writing six months in advance from one party to another.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the date and year first written above.

_____

Director of Sponsored Research
University of Florida
Thomas D. Fontaine, Acting Director

_____

Martin L. Schulkind, M.D.
Director, Division of Children's Medical Services
Department of Health and Rehabilitation Services

_____

William J. Page, Jr., Secretary
Department of Health and Rehabilitative Services

3. HEALTH RESOURCES ADMINISTRATION:

Mission:

The Health Resources Administration provides leadership with respect to the identification, deployment and utilization of personnel, educational, physical, financial and organizational resources in the achievement of optimal health services for the people of the United States. To these ends, the Health Resources Administration (HRA):

(1) conducts and supports analyses, research, developmental activities, technical assistance and evaluation programs, and informational services designed to improve the overall health services system of the Nation;

(2) collects, analyzes, and disseminates data on vital and health statistics, health status, health resources assessment and utilization, organization and management of health services, health expenditures, and related matters for the use of the Administration, other elements of the Department, and the health services industry generally;

(3) provides leadership and support for the development of State, area, and local comprehensive health planning and services for regional cooperative arrangements among medical schools, research institutions, medical care facilities, and practitioners;

(4) administers programs to meet health manpower requirements for the Nation through the support of education, training, and institutions engaged in education and research in the health field, and by maintaining relationships with national, State, and local official and voluntary organizations and institutions working in these areas; and

(5) provides leadership to and supports activities concerned with health facilities, financing, and economics.

(Vol. 39, Fed. Reg., 1456, 1/09/74)

a. NATIONAL CENTER FOR HEALTH SERVICES RESEARCH:

Mission:

P.L. 93-353 establishing the National Center for Health Services Research was enacted July 23, 1974. It provides that the Secretary, acting through the Center should undertake and support research, evaluation, and demonstration projects respecting:

(1) the accessibility, acceptability, planning, organization, distribution, technology, utilization, quality, and financing of health services and systems;

(2) the supply and distribution, educational and training, quality, utilization, organization, and costs of health manpower, and

(3) the design, construction, utilization, organization, and cost of facilities and equipment.

Also, the Secretary, shall, by grants or contracts, or both, assist public or private nonprofit entities in meeting the costs of planning and establishing new centers, and operating existing and new centers, for multidisciplinary health services, research, evaluations, and demonstrations respecting the matters referred to in subsection (b). To the extent practicable, the Secretary shall approve, in accordance with the requirements of this subsection and section 308, a number of applications for grants and contracts under this subsection will result in at least six of such centers (including two national special emphasis centers, one of which (to be designated as the Health Care Technology Center) shall focus on all forms of technology, including computers and electronic devices, and its applications in health care delivery, and one of which (to be designated as the Health Care Management Center) shall focus on the improvement of management and organization in the health field, the training and retraining of administrators of health care enterprises, and the development of leaders, planners, and policy analysts in the health field) being operational in each fiscal year.

The requirement is also made that of the total funds appropriated for the Center each year, not less than 25 percent shall be made available only for health services research, evaluation, and demonstration activities directly undertaken by the Secretary under such section.

NATIONAL CENTER FOR HEALTH SERVICE RESEARCH

Federal Program Abstract

KEY

major treat/ed areas cont. med. ed.
treatment

DEPARTMENT AFFILIATION:

HEW/HRA

ENABLING LEGISLATION:

Health Services Research, Health Statitistics and Medical Libraries Act of 1974 (P.L. 93-353)

MANDATE:

Through research activities, to determine factors that affect accessibility and acceptability of health service delivery.

KEY RESPONSIBILITIES:

The primary sponsor for health services research in the country, the Center is presently encouraging research in quality of care, inflation and productivity, health care and the disadvantaged, health manpower, health insurance, planning and regulation, and emergency medical services.

RESOURCE POTENTIAL:

The National Center for Health Services Research could play a major role in funding diabetes treatment and education programs as well as education research. Recognizing its mandate to research the acceptability of health service delivery, the Center could sponsor variations of treatment and education programs in diabetes and examine their comparative effectiveness. Moreover, given its current emphasis on the disadvantaged, the Center's resources could be tapped for low income diabetes programs in numerous education areas.

These represent but a few examples of the potential diabetes projects which could be assured by the Center.

b. HEALTH SYSTEMS AGENCIES

Federal Program Abstract

KEY

treatment/patient ed./public ed.

DEPARTMENT AFFILIATION:

HEW/HRA/Bureau of Health Planning and Resources Development

ENABLING LEGISLATION:

National Health Planning and Resources Development Act of 1974 (P.L. 93-641)

MANDATE:

To develop guidelines, to set health priorities, to develop, evaluate and review state and local health plans, to fund health projects and to review proposals for health facility or service expansion.

RESOURCE POTENTIAL:

At the national level, the national office of the Health Systems Agencies provides a potential resource for requesting that each local HSA include a state plan for diabetes in general health plans submitted annually. On a local level, HSA's with such diabetes planning components also would have funding power to insure implementation of local diabetes treatment and education proposals.

c. BUREAU OF HEALTH MANPOWER:

Activities Relating to Diabetes Mellitus:

The Bureau of Health Manpower, Health Resources Administration, is concerned with determining the Nation's resources and requirements for health professions manpower through a variety of legislative authorities. Assistance is provided health professions students and schools to meet the costs of basic and postgraduate training, to maintain and expand educational facilities, to conduct educational research and development, to provide for training in primary care and family medicine, to encourage area-wide health education, and to assure an adequate supply and distribution of health personnel through health manpower education initiatives.

Dissemination of Knowledge - Education and Training

While the Bureau's primary focus has been in education and dissemination of knowledge for the health professions, there is limited activity through the research grant route dealing with aspects of patient education, health maintenance, and health prevention. Formerly, Regional Medical Program activities also were part of the Bureau's programmatic activities; several of these projects dealt with chronic deseases. Regional Medical Programs are now under the purview of the Bureau of Health Planning and Resource Development.

Applicaton of Knowledge - Evaulation and Treatment

The Bureau's legislated and programmatic activities are carried out in the Divisons of Dentistry, Nursing, Medicine and the Associated Health Professions. The Bureau's intramural efforts have been directed towards the following areas: primary care, geographic distribution of health professionals, foreign trained professionals, and interprofessional training and demonstrations involving nurse practitioners, dental assistants, and physicial assistants. Recently contracted training efforts for health personnel in the field of long-term care were transferred to the Bureau. One intramural contract supported by the Division of Nursing (NO;-NU-24290) is investigating the responses of aged, institutionalized diabetics to an experimental nursing care program.

Several Bureau programs have relevance for chronic illness, although they are not specific to diabetes. These are: special projects intended to assist health professional schools to improve their curricula: family medicine residencies; area health education centers, manpower initiatives for special interprofessional training efforts to serve underserved areas in particular, long-term training, and research and development.

d. AREA HEALTH EDUCATION CENTER

Federal Program Abstract

KEY

professional ed./patient ed. (low income)

DEPARTMENT AFFILIATION:

HEW/HRA

ENABLING LEGISLATION:

Health Manpower Training Act of 1971

MANDATE:

Joining hospitals and universities in programs to provide education and training in areas in serious need of health personnel.

KEY RESPONSIBILITIES:

By using hospitals as focus points, to provide continuing education for doctors, dentists and other health professionals and, by supporting resident salaries when a hospital's patients reside in a low income area, to improve those patients access to care.

RESOURCE POTENTIAL:

AHEC functions through state universities and several current programs could be used as prototypes or potential education vehicles for a national treatment and education initiative in diabetes. These include:

-- the University of New Mexico where an AHEC has been established for the Navajos giving the Indian population a major voice in their own health planning;

-- the University of Minnesota where a Diabetes Detection and Education Center has been established to educate patients and to assist staff in developing materials for area residents who use the center;

-- the Medical University of South Carolina AHEC which supplies in-service and continuing professional education with an emphasis on health education for minorities and the disadvantaged.

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e. OFFICE OF HEALTH RESOURCES OPPORTUNITY

Federal Program Abstract

KEY

patient ed. (low income) continuing med. ed.

DEPARTMENT AFFILIATION:

HEW/HAR

ENABLING LEGISLATION:

N/A

MANDATE:

Assist disadvantaged and minorities in obtaining access to optimal health care resources or health career opportunities.

KEY RESPONSIBILITIES:

To improve access to health care for those who are disadvantaged due to their race, sex, age, economic status, formal education or geographic location; to bring minorities - Blacks, Spanish surnamed, Native Americans, and women - into the health care system.

RESOURCE POTENTIAL:

While OHRO programs have not been used for diabetes thus far, they do provide a vehicle for delivering treatment and education to low income groups.

A sample method could be found in the Eastern Kentucky project where disadvantaged Appalacian families are being brought into a system of dental care. In the area of professional education, a sample project is that of the Medical College of Pennsylvania where inactive physicians are being retrained to serve specific groups or specific illnesses.

4. ALCOHOL, DRUG ABUSE, AND MENTAL HEALTH ADMINISTRATION:

a. NATIONAL INSTITUTE OF MENTAL HEALTH

Federal Program Abstract

KEY

treatment/patient ed/cont.med.ed./public ed.

DEPARTMENT AFFILIATION:

Alcohol, Drug Abuse and Mental Health Administration/HEW

ENABLING LEGISLATION:

Public Health Service Act of 1946 with subsequent amendments; Community Mental Health Centers Act

MANDATE

To provide leadership, policies, and goals for the Federal effort in the promotion of mental health, the prevention and treatment of mental illness, and the rehabilitation of the mentally ill.

KEY RESPONSIBILITIES:

(1) conducts and supports research on the biological, psychological, sociological, and epidemiological aspects of mental health and mental illness;

(2) supports the training of professional and paraprofessional personnel in the promotion of mental health and prevention and treatment of mental illness;

(3) conducts and support research on the development and improvement of mental health services delivery, administration and financing, and supports mental health service programs and projects;

(4) collaborates with and provides technical assistance to state authorities and regional offices, and supports state and community efforts in planning, establishing, maintaining, coordinating and evaluating more effective mental health programs;

(5) collaborates with, provides assistance to, and encourages other government agencies and institutions to promote mental health programs.

BUDGET DATA:

Appropriations: 1975 - $976 million

1976 - $654 million

1976 Breakdown

General Mental Health:	$306,006,000
Drug Abuse:	221,858,000
Alcoholism:	114,199,000
Program Direction:	11,564,000

RESOURCE POTENTIAL:

Recognizing the relationship of diabetes to mental illness and stress, the programs of ADAMAA are of great potential relevance. Obvious examples include:

(1) research: examining the role of diabetes in the formation or exacerbation or precipitation of mental symptomatology

(2) training: attention to psychophysiologic, psychosomatic, or related issues including education about diabetes and its ramifications

(3) services: if requested by a community, any one of the Administrations 500 Community Mental Health Center (CMHC) might offer psychologically oriented education to parents, juvenile diabetics, or diabetes individuals who are adjusting poorly to the disease

(4) information dissemination: provision by ADAMHA's Clearinghouses of annotated bibliographies on any scientific literature relating to mental illness alcohol or drug abuse in diabetics

(5) centers: funding could be tapped to provide a center on the psychosomatic problems of diabetics.

5. NATIONAL LIBRARY OF MEDICINE:

Audiovisual Program

Federal Program Abstract

KEY

Con't. med ed/ public ed/ patient ed/ educational research

DEPARTMENT AFFILIATION:

ENABLING LEGISLATION:

N/A

MANDATE:

To develop a national program to improve the quality and use of biomedical audiovisual in schools of the health professions and throughout the biomedical community.

KEY RESPONSIBILITIES:

The Center has programs in four specific areas:

(1) Information services to permit ready access to available instructional materials. This includes compiling catalogs and indexes and placing audiovisual cataloging data on-line for retrieval through the MEDLINE system.

(2) A distribution system which makes the sharing of instructional materials economically and technically feasible.

(3) Assisting schools in planning and designing facilities for using instructional media.

(4) Designing, developing, testing, and evaluating instructional media materials.

RESOURCE POTENTIAL:

Clearly, some of the audiovisual programs needed for diabetes treatment and education could be funded through National Medical Audiovisual Center. Not only distribution of diabetes education material but also development of innovative facilities and educational tools could be a part of such an effort.

6. MISCELLANEOUS

a. REGIONAL OFFICES

Federal Program Abstract

KEY

Treatment/Patient ed./Public ed.

DEPARTMENT AFFILIATION:

HEW

ENABLING LEGISLATION:

N/A

MANDATE:

To implement national health guidelines and programs on a regional level, to coordinate local planning agencies in their efforts, and local planning efforts.

KEY RESPONSIBILITIES:

To provide technical assistance to state and local governments and health organizations and to review and approve public health service projects in their respective regions.

RESOURCE POTENTIAL:

The regional offices of HEW, by utilizing both discretionary funds allocated to them and health revenue sharing provisions, could request that state health services plans submitted to them in request for either type of funds include programs for education and treatment of diabetes. This could be accomplished by legislation or direction of the Assistant Secretary for Health.

Moreover, regional offices currently could hold conferences in their respective regions to achieve a number of goals including:

1) Receiving input from a broad spectrum of interests in the community who will be involved in a diabetes program (e.g., public health, HSA, universities, voluntary health agencies, CDC);

2) identifying resources in that region which could contribute to an increased effort in diabetes education and control programs;

3) developing appropriate and effective systems for diabetes screening, diagnosis, treatment, and follow-up education.

Furthermore, the regional offices could easily provide technical assistance to state and local government in their effort to develop state plans for diabetes.

b. NATIONAL INSTITUTE OF EDUCATION

Federal Program Abstract

KEY

Public Education/Research in Education

DEPARTMENT AFFILIATION:

HEW

ENABLING LEGISLATION:

PL 92-318, June 23, 1972

MANDATE:

The Federal Government has a clear responsibility to provide leadership in the conduct and support of scientific inquire into the educational process.

KEY RESPONSIBILITIES:

To develop and improve bilingual and multicultural programs in elementary and secondary schools, examine learning motivation, develop and support cooperation between professional associations/researchers and local educators and generally analyze new and innovative approaches to education on all levels and for all age groups.

RESOURCE POTENTIAL:

Both of these projects could serve as prototypes for diabetes education programs under the auspicies of the National Institute of Education.

The NIE has engaged in a series of projects relevant to health. These include:

1) A program with the Federation of Rocky Mountain States to provide special courses in health education and careers to junior high students in Spanish and native American languages;

2) A program in Alaska in which consumer committees of village representatives, native leaders and health officials broadcast programs in health education and early childhood education.

(76) Program Budget

Dissemination	$18.4 million
Basic Skills	$13.9
Finance/Prod/Mgmt	$18.3
Education/Work	$ 9.9
Equity	$ 5.4
Other	$ 3.4
Admin/House Research	$10.7
	$80.0

73	74	75
$106.8	$75.7	$70.0

c. EXTENSION SERVICES

Federal Program Abstract

KEY

Patient Education/Public Education

DEPARTMENT AFFILIATION:

United States Department of Agriculture

ENABLING LEGISLATION:

Cooperative Extension Service Act of 1914, and amendments

MANDATE:

Education programs to improve quality of family decisions in homes, farms, and communities.

KEY RESPONSIBILITIES:

To emphasize education in family health, to encourage inclusion of nutrition specailists on community health teams; to educate handicapped homemakers on home planning and food preparation.

BUDGET DATA:

Competing grants and contracts funds not included with this draft.

UNIVERSITY OF CALIFORNIA

C. SUMMARY MATRICES

KEY:

Program is appropriate ✓

Special consideration to low income groups *

Program/Agency	Patient education/ special services+	Public education	Continuing medical education	Medical care, delivery system (treatment)	Research in education
Professional Standards Review Org./HSA/HEW			✓	✓	
Provider Standards and Certification/HSA/HEW	✓	✓	✓	✓	
Maternal and Child Health/ HSA/HEW	✓*	✓	✓	✓*	✓
Crippled Children Serv./ HSA/HEW	✓			✓	
Social and Rehabilitation Services/HSA/HEW	✓*			✓*	
National Health Service Corps/HSA/HEW	✓*		✓	✓*	
Migrant Health Programs/ HSA/HEW	✓*			✓*	

+ definitions of these categories follow the matrix

Program/Agency	Patient education/ special services	Public education	Continuing medical education	Medical care, delivery system (treatment)	Research in education
National Center for Health Service Research/HRA/HEW	✓*	✓	✓	✓*	✓
Health Systems Agencies/ HRA/HEW	✓	✓		✓	
Area Health Education Centers/HRA/HEW	✓*		✓		
Office of Health Resources Opportunity/HRA/HEW	✓*		✓		
National Institute of Mental Health/ADAMHA/ HEW	✓	✓	✓	✓	
National Library of Med./ NIH/HEW	✓	✓	✓		✓
Regional Offices/HEW	✓	✓		✓	
National Institute of Ed./ HEW		✓			✓
Extension Services/USDA	✓	✓			

Definitions:

1) Patient education and special services

includes all educational programs, resources, and/or funding agencies directed at, or used directly by, diabetic patients, in or out of a hospital setting, as well as other social or educational services which are, or could be, available to assist them in other non-diabetes related areas of their lives.

2) Public education

includes all educational programs, resources, and/or funding agencies directed at, or used directly by, the general non-diabetic population; families of diabetic patients are considered part of this "public."

3) Continuing medical education

includes all educational programs, resources, and/or funding agencies directed at, or used directly be, all levels of professional and paraprofessional health personnel.

4) Medical care

includes all programs, resources and/or funding agencies which are related to the delivery of treatment and care categories other than education.

5) Research

includes all programs, resources, and/or funding agencies which are concerned with, or could potentially be involved in, research into new or more effective methods of educating the above groups, delivering education, designing material for use in education, or designing new or more effective systems of medical care and/or medical care delivery; this section does not refer to primary, bio-medical research.

III CORPORATIONS/UNIONS/TRADE ASSOCIATIONS

On a non-governmental level, it is equally important to investigate the role of corporations, unions, and trade associations in providing resources for diabetes treatment and education.

Successful efforts in this area have been made by the National High Blood Pressure Education Program (HBP). The sum of their experiences provides a proto-type for potential diabetes efforts.

A. CORPORATIONS:

For purposes of involvement in treatment and education programs, corporations can be divided into three groups; drug/pharmaceuticals/medical equipment firms. Contact with these corporations, particularly those producing pharmaceuticals and/or equipment for diabetes and its related diseases, will form the core of the effort to tap private sector resource potential. The reasons for this strategy are numerous.

First, these corporations have the most natural interest in diabetes treatment and education and would, therefore, become quickly involved. This involvement might prove to be a leadership factor in drawing in other, more peripheral, corporations.

Second, through their marketing and packaging operations, these firms can provide pre-established means of disseminating information.

Third, previous HBP programs indicate that corporate planning in these companies is sensitive to new treatment and education programs in medical areas related to corporate production. Thus, corporate planning, rather than constraining involvement as it might in most firms, would serve as a vehicle for the programs.

Fourth, HBP has succeeded in establishing with these firms an endorsement progrm which is potentially replicable for a national diabetes education program. In the HBP endorsement of their educational material if three prerequisites are fulfilled. The material in question:

1. must be submitted to the Heart and Lung Institute for approval of its technical accuracy and consistency;

2. must not contain a product endorsement within the educational section;

3. must not be for sale for profit.

Thus, these firms are a natural resource for treatment and education programs similar to those instituted by the HBP.

Insurance firms could also be contacted to examine their potential resources. However, insurance companies have been less responsive in HBP's experience than have the drug houses.

The last category of corporations, the manufacturing/industrial/sales firms, normally operate health education programs through local factories or subsidiaries. These latter groups, therefore, bear the major responsibility for health-related activities. However, with the exception of companies such as Gulf Oil and Westinghouse which have national corporate health education programs, manufacturing/industrial firms will not be expected to participate at a national level in conferences or seminars on potential national treatment and education programs.

B. UNIONS

As with corporations, unions can be sub-divided into three categories for the purposes of analyzing existing and potential resources. At the most aggregate level, the AFL-CIO national headquarter's Community Services Division has cooperated in the past with the HBP in poster campaigns and could be approached as a potential resource for similar diabetes efforts.

Some national-level constituent members of the AFL-CIO also have national health education programs. For example, in its national newspaper, the International Association of Machinists publishes a health education column which deals with a variety of work-related illnesses.

On the grass-roots level, local AFL-CIO committees have taken the initiative to branch into health education in much the same way as local factories have assumed the manufacturing/industrial corporation's health education role. These local groups could be contacted and proto-type programs chosen and abstracted for their potential relationship to a diabetes treatment and education campaign.

C. TRADE ASSOCIATIONS

HBP's relationship to the drug/pharmaceutical associations is one of quid pro quo. For example, American Pharmaceutical Association cooperation is coupled with HBP's advocacy of the competency of pharmacists to take blood pressure readings. Although to a lesser extent, the Pharmaceutical Manufacturers' Association also has expressed HBP interest. Thus, both groups represent potential resource pools.

Likewise, non-pharmaceutical trade associations have occupational health and education divisions. For instance, the National Association of Manufacturerers includes a major staff position for workers' compensation and health related issues. Such potential resources in trade associations could be explored and abstracted.

D. METHODS OF INVESTIGATION

Beyond the above-discussed contracts with an analysis of corporations, unions, and trade associations, it would be profitable to attempt to tap private sector resources through a number of peripheral methods and sources.

Some local voluntary groups and non-union employees organizations have been particularly successful in designing programs for use in corporate hypertension campaigns. These local groups, such as the Medical College of Wisconsin, could be contacted and their proto-type efforts abstracted.

Other local health agencies have had success in pulling together private sector resources for hypertension programs aimed at particular income or geographic groups. The low-income, inner-city efforts of the Adult Health Services of the Georgia Department of Human Resources could serve as an example and model for such a strategy as it is applicable to a diabetes program.

On a national level, HBP has organized seminars to include a range of corporations and trade associations. At these conferences, treatment and education program options are presented and corporate participants are asked for their anticipated resource response to each to facilitate their participation. Specific suggestions for that response are also presented. Such an effort could be duplicated in diabetes treatment education. Moreover, similar resource-investigating conference/seminars could also be organized for the AFL-CIO and its national union members.

Lastly, an attempt could be made to solicit the leadership cooperation of one or two corporations who have previously expressed interest in diabetes treatment and education programs. Executives of these corporations could play a vital role in gaining a positive, cooperative response from their colleagues in other corporations.

The officials of HBP have offered any assistance needed during these efforts to tap private sector resources, and their help should be utilized throughout.

IV. CONCLUSION

A. RESOURCE PROGRAM DEVELOPMENT

The federal and private resources potentially available for a diabetes treatment and education program are varied both in their source and in the audiences to whom they are relevant. The sampling of these resources presented in this report emphasizes the applicability of a range of health programs to the Commission's efforts.

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